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ABSTRACT

A study was conducted in Cuyahoga Community College's (Ohio) Principles of Economics classes to determine: (1) whether microcomputer-assisted instruction using tutorial/drill programs would significantly increase students' learning of economic concepts as measured by pre- and post-tests; (2) the relationship between demographic variables and pre- and post-test results; and (3) the validity of prior achievement in mathematics and reading comprehension for predicting learning. Four intact economics classes were selected for the study; two were designated as the experimental group and two the control group. Each student completed a demographic survey and tests of reading and mathematics achievement. Microcomputer-assisted instruction was given to the experimental group, while the control group experienced traditional lecture/discussion instruction. Significant pre-experimental differences between the control and experimental groups prevented substantive comparisons and conclusions about the effectiveness of the microcomputer-assisted instruction. Demographic variables had very low relationships to learning outcomes, while prior achievement in mathematics and reading comprehension proved to be powerful predictors of economic learning. The demographic survey instrument, the economics pre- and post-tests, the mathematics skills assessment test, and a course outline are attached. (Author/AJL)

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USING MICROCOMPUTERS IN TEACHING ECONOMICS IN THE COMMUNITY COLLEGE

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Paper Presented At
American Educational Research Association
New Orleans
April 8, 1988

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REPRINTS

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Abstract

The study took place in a Community College's Principles of Economics classes (macroeconomics) to determine: (1) if microcomputer assisted instruction tutorial/drill programs would significantly increase learning economic concepts; (2) if demographic variables were related to this learning; and (3) if prior achievement in mathematics and reading comprehension predicted such learning. Two intact groups of economics students were selected and designated as experimental group (n=63) and control group (n=71). Each student completed a demographic survey and then was tested for reading and mathematics achievement. Microcomputer assisted instruction was given to the experimental group while the control group experienced a traditional lecture/discussion mode. Pre and posttest of economic learning were administered. Significant pre-experimental differences between the sample groups prevented drawing substantive conclusions about the effectiveness of the microcomputer assisted instruction. Demographic variables had very low relationships to learning economics, while prior achievement in mathematics and reading comprehension proved to be powerful predictors in economic learning.

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USING MICROCOMPUTERS IN TEACHING ECONOMICS IN THE COMMUNITY COLLEGE

BACKGROUND

Since its first use in the late 1960s the computer has progressed rapidly as a tool to assist in the teaching of economics. Tutorials, self-tests, drills, games and simulations were part of the computer assisted instruction (CAI) programs that relied on large mainframes in the 1970s. The advent of the microcomputer in 1978 dramatically reduced the cost of computers which has made it possible for virtually every school and college to have a microcomputer lab while many teachers and students can own their own personal computers. Technological changes in the production of microchips and in the development of more sophisticated languages for writing programs, have resulted in an abundance of programs that are ready to operate and are user friendly. Increasingly, faculty at community colleges have been encouraged to integrate the computer as a learning tool into the classroom setting.

The discipline of economics makes extensive use of models, often portrayed graphically or mathematically by the use of equations to express relationships involving its basic concepts. The dynamic aspect of the study of economics not only requires a logical approach to understanding current economic phenomena, but requires that the abstract concepts be applied to changing circumstances using clear and specific quantified data in the form of costs, amounts of production, units of demand, etc. in order to predict to new situations. Frequent observation suggests that community college students have considerable difficulty understanding and applying abstract mathematical models, suggesting the need for improved ways of teaching courses in macro and microeconomics.

It also appears that community college students differ from four year college or university students. The typical community college students are older (average age, 29), have been away from formal schooling longer, are more likely to be from a minority population, and may, due to open door enrollment policies, have less formal education. Thus, their math skills and their ability to deal with abstractions may be lower than those commonly experienced in university settings. Given these conditions, the ability of the microcomputer to provide carefully designed tutorials and practice exercises to illustrate

conceptual models, may prove to be an important tool to assist students at the community college in learning economic concepts.

STATEMENT OF THE PROBLEM

The purpose of this study was to investigate the effects of computer assisted instruction (CAI) in learning economic concepts when used with students in a community college enrolled in a course in macroeconomics. The CAI program was designed by Kendra (1987) and consisted of tutorial and practice/application sessions to be completed using microcomputers in a laboratory setting. The economic concepts to be tested were: (1) production possibilities, (2) market-equilibrium, (3) circular flow model, (4) national income accounting, and (5) employment theory. These concepts are typical of the content found in courses in macroeconomics and were central to the curriculum and related texts used in this community college. For comparison purposes, achievement scores of students using the CAI program were compared with those enrolled in a "traditional" course in macroeconomics consisting of a combination of lecture, discussion, and text readings supplemented by video tapes and independent learning modules.

REVIEW OF LITERATURE

Educational researchers have been exploring the effectiveness of CAI since 1970 with varying results.

Computer Simulations

Early studies by Emery and Enger (1970), Cox (1972), Wentworth and Lewis (1972) and Chizimar, Hiebert and McConney (1975) all concluded that computer-based exercises were not effective pedagogical tools. These studies dealt primarily with computer simulations in which the implication was that participation in a simulation provided concrete experiences which supported the learning of abstract economic concepts. It was hypothesized that critical thinking based on observation of the model and its variations was expected to lead to greater reflection and comprehension. Reinforcement from the hands-on aspect of the simulation should also result in higher student interest and motivation leading to more substantive learning. These expectations were not born out by the studies.

In his review of these earlier findings Gold (1984) suggested that the negative results may have been due to methodological weaknesses such as failure to properly integrate the simulations into the course, and insufficient student involvement and motivation toward the use of the CAI materials.

Finally, in a study at Iowa State University using microcomputers Post (1985) found there were no significant differences between a group that used computer simulations and a group that completed take-home assignments in macroeconomics. (Post noted, however, that there were some gains for those who used the microcomputer program.)

Computer Assisted Instruction (CAI)

Studies of various forms of computer assisted instruction (CAI) have also produced mixed results. Henry and Ramsett (1978) designed a CAI teaching information processing system at the University of North Dakota and used it in an introductory economics course. They found that it did not result in overall increases in learning. Low ability groups did show significant gains, however, suggesting that CAI may be effective for such students.

Daellenbach, Schoenberger and Wehrs (1977) created a CAI program at the University of Wisconsin in which students in an experimental group substituted tutorial lessons, games and simulations for lecture-discussion class periods. While the results indicated a significant improvement in analytic ability, there was no general improvement in cognitive learnings or in affective factors.

Siegfried and Fels (1979) concluded in their review that "CAI appears to generate no more (or no less) cognitive achievement, but probably costs more than conventional pedagogical methods." They suggested that computer managed instruction (CMI), i.e. material which is mainly review (quizzes), instant feedback and individualized instruction to students, is moderately successful.

Studies at Community Colleges

Few studies have been done at the community college level involving computers and the teaching of economics. While the results are generally positive and show gains in learning economics, the research designs are weak and the resulting conclusions must be considered suggestive at best.

In a study at Lakeland (OH) Community College, Ross (1977) found that by using five interactive computer simulations integrated into an introductory

course in economics there were significant increases in economic comprehension as measured by scores on the TUCE, and that the CAI contributed to a more positive attitude toward the course. However, the study used a weak research design and inadequate statistical analysis.

More recently, Antar (1987) reported on a study at Manchester (NH) Community College using CAI in a microeconomics course. She concluded after comparing two classes, only one of which used CAI, that grades were improved when students used effective computer programs to learn economics. This study also used a weak research design that did not control for group differences.

Summary

Research studies have shown mixed results as to the effectiveness of computer simulation and CAI programs. Achievement gains in economic learnings and in analytic abilities have been reported where CAI programs are well integrated into an existing course structure. Differential effects were also found favoring low ability students. Many of the studies were characterized, however, by poor research designs and limited statistical analysis.

HYPOTHESES

1. Students in a community college who use microcomputers in tutorial and practice/application sessions that are integrated into a course structure will perform significantly better than students who use the traditional (lecture-discussion-text) approach on posttests designed to measure achievement in learning certain major economics concepts.

2. There is a strong, positive correlation between student achievement in economics and the demographic variables that describe the sample groups.

3. Prior school achievement in mathematics and reading are significant variables in predicting student achievement in economics.

RESEARCH DESIGN AND METHOD

Setting

Cuyahoga Community College is a large two-year college in the midwest with an enrollment of more than 20,000 students. The college has three campuses spread equidistantly across a large urban county and is designed to serve more than 2.5 million residents of a major city and its surrounding metropolitan area.

Subjects

The study was conducted at two of the campuses using four intact classes of a standard macroeconomics course (N=134). Two classes that met at 10:00 and 12:00 AM were selected from one campus and designated experimental (n=63) and two at the same times from another campus were designated as control (n=71). Because of the college's open-door admission/ enrollment policy, it was necessary to use intact, existing groups rather than the more rigorous design of random selection of subjects and assignment to treatment groups.

The demographic characteristics of the college as a whole are indicated in Table 1. Generally speaking, the college serves freshman level students (75%) who are predominantly female (61%). It is multiracial in nature and has a median student age of 26. Some 65% are enrolled in technical or occupational programs and 33% are in university parallel programs.

Table 1 also provides comparison data for the two groups used in this study and indicates that they differ considerably from the total college population. The students in the sample are generally much younger, predominantly male rather than female, full time rather than part time, and more are sophomores rather than freshmen in comparison to the college's total population.

Some differences were also found in the demographic composition of the experimental and control groups. The experimental group was somewhat older with more females and fewer part time students. Its students tended to work fewer hours at outside jobs but had more years of working experience. No meaningful differences were identified in prior or current GPAs or declared majors where slightly less than 60% of both groups considered themselves Business Administration majors. However, the scores on reading and math skills in each group did show significant differences in favor of the control group.

Instruments

Demographic survey

Data on 12 demographic variables was collected by a survey instrument given to all students in the two groups. The variables included age, sex. and several levels of employment status, college level, high school and college

GPA, and college major. A copy of the demographic survey and a summary of the responses made by each group are provided in Appendix A. Data on the total college population was not available in the same form as in the survey and was extracted from a summary of the College's entrance application survey (see Appendix B).

Measures of Economic Achievement

Two measures were used to test achievement in economics learning: (1) the nationally standardized Test of Understanding in College Economics (TUCE), and (2) a locally prepared Economics Achievement Exam (EAE) that was specifically designed to test the five selected concepts in macroeconomics emphasized in this study.

The TUCE is a widely used 30 item instrument designed specifically for measuring the learning of economic principles in introductory courses at the college level. It was developed by the Joint Council on Economic Education and the American Economic Association and normed on the basis of scores of over 1400 students enrolled in "Principles of Economics" courses at 36 colleges and universities (Weidinaar and Dobson, 1972). The revised edition (1981) was used for this study. Macro Form A was used for the pretest and Macro Form B for the posttest. Studies using the Kuder-Richardson formula 20 indicate a high reliability coefficient for the two forms of the TUCE. Form A = .81 and Form B = .76 with SE = 2.44 and 2.46 respectively. Copies of the TUCE, Forms A and B, and their cognitive matrices are provided in Appendix C.

The Economics Achievement Exam (EAE) was a 29 item test designed by the researchers and geared specifically to the five concepts from macroeconomics that were central to the college course. The items were questions taken or rewritten from the test bank to accompany the class text, (R.L. Miller, *Economics Today*, 5th ed. 1985) and designed to test at all six levels of Bloom's *Taxonomy*. A copy of the EAE and a matrix showing the 29 test items distributed across the five concepts and the six levels of the taxonomy is provided in Appendix D.

Measures of Prior Learning

The researchers believed that prior math and reading achievement might act as particularly powerful variables in learning economic concepts. Tests for both factors were used to gather data that was later used as covariates

and predictor variables in statistical analyses of the TUCE and EAE achievement scores (dependent variables).

Math Achievement

Since SAT and ACT entry scores for math were not readily available and the college's entry math tests were designed only for math course placement, the researchers worked with members of the math department to develop a math achievement (MATHACH) exam based on the knowledge and skills needed in the macroeconomics course. The test contained twenty problems and could be completed in 20 minutes. It tested basic arithmetic operations, solving simple equations, and interpreting tabulated data and graphs with two variables. It was administered as a pretest measure to all students and used later as a covariate in the statistical analyses. A copy of the MATHACH test and a summary of student performance data on it are included in Appendix F.

Reading Achievement

To measure reading comprehension the Nelson-Denny Reading Test, Form D (NDREAD) was administered to all participants as a pretest measure and used later as a covariate in the statistical analyses. The NDREAD yields grade level and percentile scores and was standardized in 1972 with a college sample including 11 four-year colleges (n=929) and 6 two-year colleges (n=1018). It has a .70 Pearson correlation with the SAT and .73 with PSAT. A copy of the NDREAD test and a summary of student performance data on it are included in Appendix E.

RESEARCH DESIGN

Because the College's open-door admission/enrollment policy made it impossible to randomly assign subjects and treatment groups, this study used a quasi-experimental research design (Campbell and Stanley, 1963). It involved two non-random, intact groups (N=134), designated experimental (n=63) and control (n=71), with two pre and posttest measures of the dependent variable, and two measures of prior learning as covariates. A survey was used to gather data on 12 demographic variables that were used to describe the sample groups and to test possible relationships with the dependent variables.

Data Analysis

Pretest Data

The problem of differential selection was addressed through careful analysis of initial group differences.

•Descriptive statistics were calculated for all pretest variables and examined by group.

•T-tests were computed on the pretest scores of economic achievement (PRETUCE and PREEAE) and on the covariate measures of prior learning (MATHACH and NDREAD).

•Pearson product-moment correlations were computed on each of the 12 demographic variables with the four pretest measures.

Posttest Data

Following the 10 week treatment period posttest scores were analyzed using several different statistical tests.

•T-tests were computed on the gain scores between pre and posttest scores for each group to test the effectiveness of the treatment by group.

•Analyses of variance were run on the dependent variables, POSTTUCE AND POSTEAE to determine main effects for treatment.

•To adjust posttest scores for initial differences, analyses of covariance were run with each of the dependent variables using MATHACH, NDREAD and {MATHACH + NDREAD} as covariates to determine the effects of treatment.

• MATHACH, NDREAD and {MATHACH + NDREAD} were used as predictor variables with the two dependent variables POSTTUCE AND POSTEAE in step-wise multiple linear regression analyses.

•Pearson product-moment correlations were run between each of the 12 demographic variables and the two posttest measures, POSTTUCE and POSTEAE.

Procedures

Experimental Group

The experimental treatment consisted of (1) classroom lectures and discussions illustrated by graphic presentations of computer generated problems, and (2) a series of seven tutorial and practice programs created for student use on microcomputers, and developed to support in an integral manner the teaching of macroeconomic concepts (Kendra, 1987).

During class periods the professor for the experimental group used a portable computer and Kodak Datashow for large screen projection to generate tabular data and graphic examples to immediately illustrate the concepts being taught and to respond to students' questions with examples using their own data. The program is designed to show visually the construction or intersection of a line or curve, point by point, as data is entered, modified or deleted.

The tutorials were instructional units created to supplement and expand the class presentation and textbook. The practice programs were interactive and allowed students to control input variables and experiment with results as they worked with tabulated data and produced graphic solutions. These practice materials followed the same format as the computer generated examples used in class. Students worked on the materials in an open microcomputer lab at the college where tutors were regularly available to help with computer problems. They used a special instructional manual and program disc developed by one of the researchers. The student disc was actually a template of the instructor's program that allowed them to input practice data sets from the manual, or to devise an infinite number of their own examples using data they themselves generated. Special assignments were completed and turned in to the professor after each tutorial/practice session was completed. The same program was also used to generate test problems in order to provide a consistent linkage between teaching, practice/application, and testing.

Control Group

The control group followed the "traditional" format for teaching the microeconomics course at the community college. It consisted of classroom lectures, discussion, readings in an assigned text, and exams. Homework exercises using class handouts, text problems and the text's study guide were assigned and reviewed in class. The class lectures were supplemented in three ways: (1) independent study modules consisting of 14 audio tapes and a workbook which was completed while listening to the tapes; (2) eight 28 minute video tapes from the Annenberg series on Economics USA and one from the Federal Reserve Bank; and (3) a field trip to the local Federal Reserve District Bank in Cleveland.

Controlling for Other Variables

Because the research design used non-random intact groups every effort was made to control other factors related to treatment and instructor variables. Both groups used the same text (R. L. Miller,*Economics Today* , 5th ed., 1987), maintained similar grading systems, coordinated syllabi, covered the same body of content (text chapters), and emphasized those that dealt with the five selected concepts of macroeconomics listed earlier.

Student attendance and attrition is a special problem at the community college. Instructors frequently must give make-up exams to absentees and about 10% of the students drop out a course for various reasons. In this study the researchers were diligent in keeping after students to make up tests so that there are very few cases of missing data on any of the variables. Overall mortality was also very low. Nine cases were lost during the study (N=125); four in the experimental group (n=59) and five in the control group (n=66).

RESULTS

Pretest Data

Analyses of pretest data indicated that the two groups were not alike and were significantly different on several variables. Indeed, though the sample groups are from two campuses of the same college, the data suggest strongly that they may indeed be two separate populations.

Demographic data is summarized for both groups in Table 1. The experimental group was somewhat older, with more females and fewer part time students. Its students tended to work fewer hours at outside jobs, but had more years of working experience. No meaningful differences were identified in prior or current GPAs or declared majors where slightly less than 60% of both groups considered themselves Business Administration majors.

As shown in Table 2, the groups differed on the mean scores of all pretest variables. The experimental group had lower means on the two pretest measures of economic achievement (PRETUCE and PREEAE), and also on the two measures of prior learning in mathematics and reading (MATHACH and NDREAD). These mean differences are shown to be significant on the t-tests of all four premeasures ($p.<.0001$) as shown in Table 4.

Despite the assumptions frequently made about the relationship of demographic variables to student outcomes, none of the twelve variables surveyed showed a strong correlation with any of the pretest measures. As

shown in Table 5, all correlations were less than .30,many were negative, and only three were significant ($p < .05$). Stated simply, age, sex, employment, degree status, college major and GPAs (including college and high school gpa) have only a minimal relationship to measures of achievement in economics for these two samples of community college students.

Posttest Data

Following the 10 week treatment period, post test scores were analyzed using several different statistical tests to try to examine more closely the main effects for treatment between groups.

Realizing that the two groups were distinctly different, t-tests were computed on gain scores between the pre and posttest measures for each group. As shown in Table 6 the control group gained significantly more than the experimental group on both the TUCE and EAE ($p=<.0001$). Indeed, the experimental group showed a slight loss on the TUCE (-0.105) following the treatment.

The same general results were observed when the two variables related to prior learning, MATHACH and NDREAD, were used as covariates with each of the posttest measures, POSTTUCE and POSTEAE. As shown in Tables 7, 8, 9 and 10 the control group scores were significantly different from those in the experimental group ($p=<.0001$), even when the pretest scores were adjusted for the prior differences in math and reading abilities. Similar results favoring the control group ($p=<.0001$) were found when the covariates were combined as shown in Tables 11 and 12.

The importance of prior learning in mathematics and reading was demonstrated very clearly in Tables 13 and 14 where MATHACH and NDREAD scores were used as predictor variables in multiple regression analyses upon the measures of economic learning, POSTTUCE and POSTEAE. Both variables were significant ($p<=.001$) in the step-wise regression equations and produced moderately strong multiple correlations with the dependent variables.

	NDREAD	MATHACH
POSTTUCE	.457	.530
POSTEAE	.552	.628

Even stronger, highly significant correlations ($p<.0001$) were obtained using the Pearson product-moment method as shown in Table 3, suggesting clearly the

importance of prior skills in reading and mathematics.

	ND READ	MATHACH	[Math + ND READ]
POSTTUCE	.588	.610	.619
POSTEAE	.720	.736	.753

In contrast, none of the 12 demographic variables demonstrated any predictive power on either of the postmeasures as shown in Tables 15 and 16. Not a single variable was entered into either step-wise regression equation. This only serves to confirm the earlier data from the pretest analyses, that this set of demographic variables is not related to measures of learning in economics for this sample of community college students, nor do any of them have any predictive value, unlike the MATHACH and NDREAD which do.

CONCLUSIONS

The data analysis and results reported above suggest several conclusions. One area deals with improving the research design; the other deals with several factors related to the broader environmental context of the study.

Research Design

The research design used did not prove to be an adequate test of the use of computers as a teaching method in economics in the community college. The fact that the campus on which the experimental program was used proved to be so distinctly different from the control group campus, suggests that a different design was needed. In follow-up studies to be conducted in 1988-89 we shall use both treatments at both campuses, and attempt to add additional faculty to moderate the influence of the instructor variable. Furthermore, we shall consider each campus as a separate population with its own characteristics and not attempt to make comparisons across the two groups, but only between treatment groups on the same campus. Lastly, because math and reading abilities seem to be such powerful factors, we shall use a blocked design on each of these variables to re-analyze present data, and that obtained next year, to study more closely the differential impact of the treatment on low and high achievers. It is important to know if earlier results obtained by Henry and Ramsett (1978) that CAI tended to be effective with low ability students can be replicated.

Environmental Factors

Several other factors related to the broader environmental context may also have had some impact upon this study. These include: (1) students' general unfamiliarity with microcomputers, (2) aversive effects of "excessive testing", and (3) organizational problems in scheduling class and computer lab time that is convenient for working students.

The instructors reported that some students had very limited knowledge of microcomputers, were afraid to use them, and that some were resentful and even hostile that microcomputers were being used as a component of the course. Despite the widespread use of computers in elementary and secondary schools today, there appears to be a sufficiently large segment in the community college population who are not a part of the "computer generation" -- and who apparently do not want to be! In a community college with an open-door admission/enrollment policy, this observation has serious implications for the counselling of students.

It also appeared that there might have been "excessive testing" in a short 10 week quarter; testing that didn't always "count" toward the final grade. There were seven "tests" that students took: pre and posttests on TUCE and EAE, math and reading achievement measures, and a demographic survey. Some students complained that it was "excessive and unnecessary". The instructors observed that some students made little effort in completing the POSTTUCE and simply marked answers randomly "just to get out," a factor which may account for the declines in some TUCE scores. If background data such as MATHACH and NDREAD scores were readily available on all students, then the scores could be obtained from college records and used as covert measures, rather than require additional testing during class time.

Lastly, administrators must address the problem of scheduling sufficient and convenient amounts of lab time for microcomputers for students who work a large number of hours per week. Course schedules may need to be reexamined to provide either large blocks of time for a combination of lecture and application work, or a sufficient number of open lab hours must be provided for those courses other than computer studies that are now beginning to use computers as an essential component of the teaching process.

* * *

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DEMOGRAPHIC INFORMATION FOR STUDENTS IN EXPERIMENTAL AND CONTROL GROUPS*

	Experimental (N = 62)	Control (N = 71)	College (P = 20,000)
1. How old are you?			
22 or younger	63%	72%	33%
23 or older	37%	27%	67%
2. What is your sex?			
Male	52%	62%	39%
Female	48%	38%	61%
3. Current credit hours enrolled?			
Part-time (1 - 11)	36%	26%	71%
Full-time (12 and over)	65%	73%	29%
4. Currently employed?			
Yes	71%	76%	--
No	27%	24%	--
5. Average hours worked? (of those working)			
1 - 20 hours	41%	34%	--
21 and over	59%	66%	--
6. College credit hours completed?			
Freshman (1 - 45)	41%	51%	75%
Sophomore (46 - 93)	44%	49%	25%
Upperclassman (94 or more)	8%	0%	--
7. Highest college degree attained?			
None	90%	92%	--
Associate	3%	4%	--
Bachelor's	5%	3%	--
Master's	2%	1%	--

	Experimental (N = 62)	Control (N = 71)	College (P = 20,000)
8. Years of working experience?			
None	2%	3%	--
1 - 5	47%	62%	--
6 - 10	27%	25%	--
11 - 20	18%	10%	--
21 and over	6%	0%	--
9. Current college G.P.A.?			
2.6 and above	60%	59%	--
2.59 and below	35%	40%	--
No answer	5%	1%	--
10. G.P.A. at other colleges?			
Lower risk (2.6 and above)	29%	18%	--
Higher risk (2.59 and below)	50%	31%	--
No answer	21%	52%	--
11. G.P.A. in high school?			
Low risk (2.6 and above)	71%	69%	--
Higher risk (2.59 and below)	29%	31%	--
12. What is your major?			
Business	58%	59%	--
Science/Math	6%	11%	--
Technical Studies	6%	6%	--
Social Sciences	5%	4%	--
Other or undecided	21%	20%	--

*Note: Numbers may not add to 100% due to rounding or failure of students to respond.

TABLE 2

MEAN AND STANDARD DEVIATIONS ON VARIABLES FOR EXPERIMENTAL AND CONTROL GROUPS

	Experimental (M = 63)		Control (M =71)	
	Mean	SD	Mean	SD
PRE TUCE	7.460	2.764	9.197	2.584
POST TUCE	7.345	2.321	11.921	4.081
PRE EAE	8.710	2.544	11.099	2.742
POST EAE	10.554	3.185	17.352	5.799
MATH	11.016	3.490	13.685	3.273
N D READ	12.965	5.837	20.352	5.043

TABLE 3

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN POST TEST SCORES AND PREDICTOR VARIABLES

	MATH	N D READ	MATH and N D READ
POST TUCE	.610*	.588*	.619*
POST EAE	.736*	.720*	.753*
	*p ≤ .0001		

Table 4 T-Tests Comparing Experimental and Control Groups on All Six Scores.

Group 1 = Control
Group 2 = Experimental

GROUP 1 - GRP EQ 1 GROUP 2 - GRP EQ 2							POOLED VARIANCE ESTIMATE			SEPARATE VARIANCE ESTIMATE		
VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
PRETUSE												
GROUP 1	71	9.1972	2.584	0.307	1.14	0.582	3.76	132	0.000	3.74	127.52	0.000
GROUP 2	63	7.4603	2.764	0.348								
PREEAE												
GROUP 1	71	11.0986	2.742	0.325	1.16	0.551	3.18	131	0.000	3.21	130.83	0.000
GROUP 2	62	8.7097	2.544	0.323								
MATMAC												
GROUP 1	70	13.8857	3.273	0.391	1.14	0.603	4.87	130	0.000	4.85	123.65	0.000
GROUP 2	62	11.0161	3.490	0.443								
NOREAD												
GROUP 1	71	20.3521	5.043	0.598	1.34	0.243	7.71	127	0.000	7.50	123.29	0.000
GROUP 2	58	12.9655	5.837	0.766								
POSTUSE												
GROUP 1	63	11.9206	4.081	0.514	3.09	0.000	7.49	119	0.000	7.56	99.83	0.000
GROUP 2	58	7.3448	3.321	0.305								
POSTEAE												
GROUP 1	65	17.1846	3.739	0.471	1.42	0.112	10.31	119	0.000	10.44	118.92	0.000
GROUP 2	56	10.5536	3.183	0.426								

Table 5 Pearson Correlation Coefficient on All Scores with Demographic Variables.

	HOWOLD	SEX	DRHRS	EMPLOY	HRSWORK	STATUS	HIDEGREE	YRSWORK	CURSPA	OTHGRE	MSCEE	MAJOR	GRP
PRETUCE	.0244 (122) P= .962	.0035 (122) P= .970	-.1968 (122) P= .030	.0143 (121) P= .876	.0161 (106) P= .918	.0437 (120) P= .635	.0184 (121) P= .842	-.0329 (119) P= .716	.0669 (121) P= .498	.0511 (92) P= .662	.0767 (120) P= .406	.0253 (111) P= .793	-.8137 (134) P= .000
PREEAE	.0224 (121) P= .407	.0476 (121) P= .604	.2564 (121) P= .293	.0743 (120) P= .420	.0546 (105) P= .313	-.0842 (119) P= .365	-.1737 (120) P= .059	-.0883 (118) P= .342	.0609 (120) P= .509	-.0775 (91) P= .481	-.1167 (119) P= .205	-.0334 (120) P= .717	-.4175 (133) P= .000
MATHACH	-.0507 (121) P= .508	-.0164 (121) P= .859	-.0104 (121) P= .909	.1676 (120) P= .067	.0048 (105) P= .929	-.0291 (119) P= .754	-.0582 (120) P= .529	-.1575 (118) P= .089	.0963 (120) P= .295	-.0775 (91) P= .469	.1343 (119) P= .145	-.0027 (120) P= .977	-.1930 (133) P= .055
NONEAD	-.2359 (120) P= .010	-.0270 (120) P= .770	.0138 (120) P= .881	.0420 (119) P= .650	.0152 (105) P= .879	-.0718 (116) P= .443	-.1544 (119) P= .094	-.2358 (117) P= .010	.0293 (119) P= .752	.1488 (88) P= .213	-.0768 (118) P= .445	.0931 (119) P= .314	-.5646 (129) P= .000
POSTUCE	.0207 (112) P= .828	-.0849 (112) P= .373	-.0804 (112) P= .400	.0493 (111) P= .615	.1179 (97) P= .250	.0985 (110) P= .304	-.0376 (111) P= .694	-.0469 (110) P= .632	.1043 (111) P= .278	.0746 (79) P= .514	.1694 (110) P= .077	-.0810 (111) P= .399	-.5662 (121) P= .000
POSTEAE	.0529 (112) P= .580	-.0491 (112) P= .607	-.0875 (112) P= .359	.0503 (111) P= .600	.0426 (96) P= .681	.1102 (110) P= .252	-.0507 (111) P= .597	-.0619 (109) P= .509	.1378 (111) P= .149	.1171 (76) P= .312	.0810 (110) P= .344	-.0833 (111) P= .382	-.6849 (121) P= .000

Table 6 T-Tests Comparing Experimental and Control Groups on Gain-Scores.

Group 1 = Control
Group 2 = Experimental

T - T E S T

GROUP 1 - GRP EQ 1
GROUP 2 - GRP EQ 2

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIABLE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
GAINTUCL												
GROUP 1	63	2.7460	4.216	0.531	1.32	0.296	3.93	119	0.000	3.96	117.84	0.000
GROUP 2	57	5.1053	3.673	0.486								
GAINEAE												
GROUP 1	63	1.1492	4.274	0.538	1.95	0.022	5.67	117	0.000	6.04	115.76	0.000
GROUP 2	54	2.0556	3.141	0.427								

Table 7 Analysis of Covariance
POSTTUCE WITH MATH ACHIEVEMENT

BY GRP	POSTUCE				
GRAND MEAN = 5.77				ADJUSTED FOR INDEPENDENTS + COVARIATES	
VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	ETA	DEV'N	BETA
GRP					
1 CONTROL	63	2.75		1.78	
2 EXPERIMENTAL	57	-2.55		-1.95	
			.56		.46
MULTIPLE R SQUARED					.372
MULTIPLE R					.610

Table 8 Analysis of Covariance
POSTTUCE WITH NELSON-DENNY READING

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG OF F
COVARIATES	412.439	1	412.439	37.449	.000
NELSON	412.439	1	412.439	37.449	.000
MAIN EFFECTS	267.976	1	267.976	24.332	.000
GRP	267.976	1	267.976	24.332	.000
EXPLAINED	680.415	2	340.208	30.890	.000
RESIDUAL	1288.577	117	11.013		
TOTAL	1968.992	119	16.545		

115 CASES WERE PROCESSED.
10 CASES (11.1 PCT) WERE MISSING.

GRAND MEAN = 9.74

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	BETA
GRP					
1 CONTROL	63	2.19		1.79	
2 EXPERIMENTAL	57	-2.41		-1.92	
			.57		.45
MULTIPLE R SQUARED					.345
MULTIPLE R					.588

Table 9 Analysis of Covariance
POST-EAE WITH MATH ACHIEVEMENT

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG OF F
COVARIATES	705.111	1	705.111	64.109	.000
MATHACH	705.111	1	705.111	64.109	.000
MAIN EFFECTS	802.192	1	802.192	72.926	.000
GRP	802.192	1	802.192	72.926	.000
EXPLAINED	1510.304	2	755.152	68.667	.000
RESIDUAL	1281.276	116	11.045		
TOTAL	2791.580	118	23.657		

135 CASES WERE PROCESSED.
16 CASES (11.9 PCT) WERE MISSING.

GRAND MEAN = 19.11

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRP					
1 CONTROL	64	3.08		2.60	
2 EXPERIMENTAL	55	-3.35		-3.02	
			.69		.58
MULTIPLE R SQUARED					.561
MULTIPLE R					.749

Table 10 Analysis of Covariance
POST-EAE WITH NELSON-DENNY READING

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG OF F
COVARIATES	856.104	1	856.104	74.259	.000
NDREAD	856.104	1	856.104	74.259	.000
MAIN EFFECTS	596.168	1	596.168	51.725	.000
GRP	596.168	1	596.168	51.725	.000
EXPLAINED	1454.271	2	727.136	63.072	.000
RESIDUAL	1348.854	117	11.529		
TOTAL	2803.125	119	23.556		

135 CASES WERE PROCESSED.
16 CASES (11.1 PCT) WERE MISSING.

GRAND MEAN = 19.13

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRP					
1 CONTROL	64	3.06		2.60	
2 EXPERIMENTAL	55	-3.42		-2.89	
			.69		.55
MULTIPLE R-SQUARED					.519
MULTIPLE R					.720

Table 11 Analysis of Covariance
POST-TUCE WITH (MATH ACHIEVEMENT
AND NELSON-DENNY READING)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG OF F
COVARIATES	556.049	2	278.025	26.648	.000
MATHCH	193.316	1	193.316	17.775	.000
NDREAD	187.580	1	187.580	17.977	.000
MAIN EFFECTS	190.306	1	190.306	18.239	.000
GRP	190.306	1	190.306	18.239	.000
EXPLAINED	746.355	3	248.785	23.843	.000
RESIDUAL	1199.964	115	10.434		
TOTAL	1946.319	118	16.494		

135 CASES WERE PROCESSED.
18 CASES (11.9 PCT) WERE MISSING.

GRAND MEAN = 9.78

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRP					
1 CONTROL	61	2.14		1.43	
2 EXPERIMENTAL	56	-2.41	.26	-1.59	.39
MULTIPLE R SQUARED					.384
MULTIPLE R					.619

Table 12 Analysis of Covariance
POST-EAE WITH (MATH ACHIEVEMENT
AND NELSON-DENNY READING)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG OF F
COVARIATES	1134.588	2	567.294	53.456	.000
MATHCH	276.551	1	276.551	26.057	.000
NDREAD	427.037	1	427.037	40.240	.000
MAIN EFFECTS	445.953	1	445.953	42.022	.000
GRP	445.953	1	445.953	42.022	.000
EXPLAINED	1580.541	3	526.847	49.645	.000
RESIDUAL	1209.798	114	10.612		
TOTAL	2790.339	117	23.849		

135 CASES WERE PROCESSED.
17 CASES (13.6 PCT) WERE MISSING.

GRAND MEAN = 14.12

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRP					
1 CONTROL	63	3.07		2.19	
2 EXPERIMENTAL	54	-3.54	.63	-2.59	.49
MULTIPLE R SQUARED					.566
MULTIPLE R					.753

Table 13 Multiple Regression Analysis on Post-Tuce with Math Achievement and Nelson-Denny Reading as Predictors.

EQUATION NUMBER 1 DEPENDENT VARIABLE.. POSTUCE

DESCRIPTIVE STATISTICS ARE PRINTED ON PAGE 1

DEPENDENT BLOCK NUMBER 1. METHOD: STEPWISE

VARIABLE(S) ENTERED ON STEP NUMBER 1.. NONREAD

MULTIPLE R	.47444				ANALYSIS OF VARIANCE			
R SQUARE	.22507	R SQUARE CHANGE	.22507			DF	SUM OF SQUARES	MEAN SQUARE
ADJUSTED R SQUARE	.20277	F CHANGE	31.26644		REGRESSION	1	405.47737	405.47737
STANDARD ERROR	3.61956	SIGNIF F CHANGE	.0000		RESIDUAL	118	1558.83919	13.13423
					F = 31.26644		SIGNIF F = .0000	

VARIABLES IN THE EQUATION

VARIABLE	B	SE B	BETA	F	SIG F
NONREAD	.883378	.158019	.474744	31.266	.0000
(CONSTANT)	4.350943	.922631		28.181	.0000

VARIABLE(S) ENTERED ON STEP NUMBER 2.. MATHACH

MULTIPLE R	.53035				ANALYSIS OF VARIANCE			
R SQUARE	.28128	R SQUARE CHANGE	.05621			DF	SUM OF SQUARES	MEAN SQUARE
ADJUSTED R SQUARE	.26699	F CHANGE	11.55951		REGRESSION	2	550.26376	275.13188
STANDARD ERROR	3.46597	SIGNIF F CHANGE	.0009		RESIDUAL	117	1403.83280	12.00713
					F = 22.89424		SIGNIF F = .0000	

VARIABLES IN THE EQUATION

VARIABLE	B	SE B	BETA	F	SIG F
NONREAD	.207234	.052560	.333939	15.971	.0002
MATHACH	.367079	.093185	.492135	15.796	.0002
(CONSTANT)	2.396956	1.283463		3.686	.0571

END BLOCK NUMBER 1 PIN = .100 LIMITS REACHED.

SUMMARY TABLE

STEP	MULTR	RSQ	ADJRSQ	F(EQN)	SIGF	RSQCH	FCH	SIGCH	VARIABLE	BETAIN	CORRTL
1	.4744	.2251	.2028	31.266	.000	.2251	31.266	.000	NONREAD	.4744	.4744
2	.5304	.2813	.2669	22.894	.000	.0562	11.560	.001	MATHACH	.2951	.4221

R SQUARE	.39819	R SQUARE CHANGE	.04978			DF	SUM OF SQUARES	MEAN SQUARE
ADJUSTED R SQUARE	.34477	F CHANGE	17.00009		REGRESSION	3	1961.91111	653.97037
STANDARD ERROR	3.79192	SIGNIF F CHANGE	.0001		RESIDUAL	116	1667.39187	14.37406

Table 14 Multiple Regression Analysis on Post-EAE with Math Achievement and Nelson-Denny Reading as Predictors.

EQUATION NUMBER 1 DEPENDENT VARIABLE.. POSTEAE

DESCRIPTIVE STATISTICS ARE PRINTED ON PAGE 2

BEGINNING BLOCK NUMBER 1. METHOD: STEPWISE

VARIABLE(S) ENTERED ON STEP NUMBER 1.. NDREAD

MULTIPLE R	.55254				ANALYSIS OF VARIANCE		
R SQUARE	.30541	R SQUARE CHANGE	.30541		DF	SUM OF SQUARES	MEAN SQUARE
ADJUSTED R SQUARE	.29947	F CHANGE	51.44491	REGRESSION	1	843.21206	843.21
STANDARD ERROR	4.04613	SIGNIF F CHANGE	.0000	RESIDUAL	117	1918.42822	16.39
				F = 51.44491		SIGNIF F = .0000	

VARIABLES IN THE EQUATION

VARIABLE	b	SE B	BETA	F	SIG F
NDREAD	.406937	.057010	.552640	51.445	.0000
(CONSTANT)	7.151607	1.035200		47.726	.0000

VARIABLES NOT IN THE EQUATION

VARIABLE	BETA IN	PARTIAL	MIN TOLER	F	SIG
MATHACH	.330012	.[illegible]	.[illegible]	17.[illegible]	.[illegible]

VARIABLE(S) ENTERED ON STEP NUMBER 2.. MATHACH

MULTIPLE R	.62954				ANALYSIS OF VARIANCE		
R SQUARE	.39619	R SQUARE CHANGE	.09078		DF	SUM OF SQUARES	MEAN SQUARE
ADJUSTED R SQUARE	.39077	F CHANGE	17.22009	REGRESSION	2	1058.80178	529.40
STANDARD ERROR	3.79192	SIGNIF F CHANGE	.0001	RESIDUAL	116	1667.53912	14.37
				F = 37.99943		SIGNIF F = .0000	

VARIABLES IN THE EQUATION

VARIABLE	B	SE B	BETA	F	SIG F
NDREAD	.306391	.058943	.414346	27.145	.0000
MATHACH	.436140	.105101	.330012	17.220	.0001
(CONSTANT)	5.426045	1.021912		28.718	.0000

END BLOCK NUMBER 1 POUT = .100 LIMITS REACHED.

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SUMMARY TABLE

STEP	MULTR	RSQ	ADJRSQ	F(EQN)	SIGF	RSQCH	FCH	SIGCH		VARIABLE	BETAIN	CORREL
1	.5525	.3054	.2995	51.445	.000	.3054	51.445	.000	IN:	NDREAD	.5526	.5525
2	.6295	.3962	.3908	37.999	.000	.0908	17.220	.000	IN:	MATHACH	.3300	.7094

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25.

Table 15 Multiple Regression Analysis with 12 Demographic Variables as Predictors.

CORRELATIONS:

	POSTUCE	HOUSOLD	SEX	CSHRS	EMPLOY	HRSWORK	STATUS	HIDEGREE	YRSWORK	CURSPA	OTHSPA	HSSPA	MAJOR
POSTUCE	1.000	.021	-.085	-.060	.048	.118	.098	-.036	-.049	.104	.077	.105	-.081
HOUSOLD	.021	1.000	.125	-.261	-.183	.021	.235	-.261	.511	.149	.271	.045	-.036
SEX	-.085	.125	1.000	-.044	-.078	.041	.175	-.050	-.025	.053	.022	.145	.149
CSHRS	-.060	-.261	-.044	1.000	-.015	-.015	-.121	-.221	-.150	.042	-.120	-.151	.205
EMPLOY	.048	-.183	-.078	-.015	1.000	.374	-.043	-.066	.047	-.146	-.265	.118	-.203
HRSWORK	.118	.021	.041	-.015	.374	1.000	-.146	-.069	.087	-.027	-.155	.026	-.114
STATUS	.098	.235	.175	-.121	-.043	-.146	1.000	.126	.244	.122	.147	.110	.017
HIDEGREE	-.036	.261	-.050	-.221	-.066	-.069	.126	1.000	.106	.060	.263	.027	.043
YRSWORK	-.049	.511	-.025	-.150	.047	.087	.244	.106	1.000	.091	.028	.001	-.177
CURSPA	.104	.149	.053	.042	-.146	-.027	.122	.060	.091	1.000	.470	.201	-.144
OTHSPA	.077	.271	.022	-.120	-.265	-.155	.147	.263	.028	.470	1.000	.124	-.087
HSSPA	.105	.045	.145	-.151	.118	.026	.110	.027	.001	.201	.124	1.000	.069
MAJOR	-.081	-.036	.149	.205	-.203	-.114	.017	.043	-.177	.144	.255	.069	1.000

. . . . . .

EQUATION NUMBER 1 DEPENDENT VARIABLE.. POSTUCE

DESCRIPTIVE STATISTICS ARE PRINTED ON PAGE 3

BEGINNING BLOCK NUMBER 1. METHOD: STEPWISE

END BLOCK NUMBER 1 PIN = .050 LIMITS REACHED.

NO VARIABLES ENTERED/REMOVED FOR THIS BLOCK.

Table 16 Multiple Regression Analysis with Post-EAE as Predictor.

CORRELATION:

	POSTEAE	HOWOLD	SEX	CRHRS	EMPLOY	HRSWORK	STATUS	HIDEGREE	YRSWORK	CURGPA	OTHSPA	HSGPA	[illegible]
POSTEAE	1.000	.053	-.049	-.069	.050	.043	.110	-.051	-.064	.136	.118	.051	-.066
HOWOLD	.053	1.000	.125	-.261	-.183	.001	.233	.261	.511	.166	.271	.048	-.005
SEX	-.049	.125	1.000	-.044	-.076	.041	.175	-.030	-.023	.043	.206	.141	.141
CRHRS	-.069	-.261	-.044	1.000	-.016	-.015	.191	-.221	-.160	.048	-.200	-.151	.205
EMPLOY	.050	-.183	-.078	-.016	1.000	.374	-.041	-.030	.047	-.146	-.265	.115	-.092
HRSWORK	.043	.001	.041	-.015	.374	1.000	-.146	-.068	.067	-.027	-.185	.026	-.176
STATUS	.110	.233	.175	.191	-.041	-.146	1.000	.126	.244	.122	.197	.110	.017
HIDEGREE	-.051	.261	-.030	-.221	-.030	-.068	.126	1.000	.106	.060	.263	.027	.043
YRSWORK	-.064	.511	-.023	-.160	.047	.067	.244	.106	1.000	.091	.032	.001	-.177
CURGPA	.136	.166	.043	.048	-.146	-.027	.122	.060	.091	1.000	.470	.201	.144
OTHERA	.118	.271	.022	-.200	-.265	-.185	.197	.263	.032	.470	1.000	.124	.259
HSGPA	.051	.048	.141	-.151	.115	.026	.110	.027	.001	.201	.124	1.000	.069
MAJOR	-.066	-.005	.141	.205	-.203	-.114	.017	.043	-.177	.144	.259	.069	1.000

* *

EQUATION NUMBER 1 DEPENDENT VARIABLE.. POSTEAE

DESCRIPTIVE STATISTICS ARE PRINTED ON PAGE 4

BEGINNING BLOCK NUMBER 1. METHOD: STEPWISE

END BLOCK NUMBER 1 PIN = .050 LIMITS REACHED.
NO VARIABLES ENTERED/REMOVED FOR THIS BLOCK.

Appendix A

Demographic Information

Number of responses (Experimental)	Number of responses (Control)	
		DIRECTIONS: Read each question and choose the answer which best describes you. Mark the corresponding answer on the standardized answe sheet.
		1. How old are you?
39	51	a. 22 or younger
10	12	b. 23 - 28
15	6	c. 29 - 40
1	1	d. 41 - 55
0	0	e. 56 or older
		2. What is your sex?
34	43	a. male
31	27	b. female
		3. How many college credit hours are you currently enrolled in?
1	1	a. 1 - 4
22	18	b. 5 - 11
32	40	c. 12 - 15
10	11	d. 16 and over
		4. Are you employed currently in an income earning capacity?
47	53	a. Yes
17	17	b. No
		5. If you are employed, what is the approximate average number of hours you expect to work each week this quarter?
6	3	a. 1 - 10
16	17	b. 11 - 20
25	38	c. 21 - 40
8	1	d. 41 or more
10	11	No answer
		6. How many quarter hours of college credit have you completed? (Convert any semester hours on the basis of one semester hour equals 1 quarter hours).
30	36	a. 1 - 45
28	29	b. 46 - 93
7	5	c. 94 or greater
		7. Indicate the highest of the following degrees which you hold.
3	3	a. Associate
3	2	b. Bachelor's
0	1	c. Master's
0	0	d. Doctorate
58	64	e. none of the above
		8. Approximately how many years have you worked both full and/or part-tir
27	44	a. 1 - 5
19	17	b. 6 - 10
13	6	c. 11 - 20
5	0	d. 21 or over
0	3	no answer

# of responses (Experimental)	# of responses (Control)	
		9. What is your current grade point average at this college?
21	18	a. 3.3 to 4.00
20	24	b. 2.6 to 3.29
21	20	c. 1.8 to 2.59
1	5	d. 1.0 to 1.79
0	2	e. below 1.0
2	1	no answer
		10. If you have attended college elsewhere, what was your grade point average based on a four point scale?
12	5	a. 3.3 to 4.00
8	8	b. 2.6 to 3.29
23	12	c. 1.8 to 2.59
9	2	d. 1.0 to 1.79
2	6	e. below 1.0
12	37	no answer
		11. What was your grade point average in high school based on a four point scal
12	21	a. 3.3 to 4.00
32	27	b. 2.6 to 3.29
19	19	c. 1.8 to 2.59
2	2	d. 1.0 to 1.79
0	1	e. below 1.0
		12. What is your major area of study?
40	41	a. business
6	8	b. science and/or math
3	4	c. technical studies
1	3	d. social sciences
15	14	e. none of those mentioned or undecided

Appendix B

Key to Computerized Sort of Demographic and Testing Data

1. HOWOLD = How old are you?

   a = 0 (22 or younger)
   b,c,d,e = 1 (23 or older)

2. WHATSEX = What is your sex?

   a = 0 (male)
   b = 1 (female)

3. COLCRHR = How many college credit hours are you currently taking?

   a,b = 0 (1 to 11 is part-time)
   c,d = 1 (12 and over is full-time)

4. EMPLOY = Are you employed?

   a = 0 (Yes)
   b = 1 (No)

5. HRSWORK = The average number of hours worked each week.

   a,b = 0 (1 through 20 considered lighter load)
   c,d = 1 (21 or more is considered heavy load)

6. FRMSOPH = What is the number of credit hours completed to date?

   a = 0 (1 to 45 credit hours is freshman status)
   b,c = 1 (46 or more is sophmore or higher)

7. HIDEGRE = Highest college degree held.

   a,b,c,d = 0 (Associate degree or higher)
   e = 1 (nondegree holder)

8. YRSWORK = How many years have you worked?

   a = 0 (1 through 5 years)
   b,c,d = 1 (6 or more years)

9. CURGPA = What is your current college grade point average?

   a,b = 0 (2.6 through 4.0 - low risk)
   c,d = 1 (below 2.6 - high risk)

10. OTHGPA = Grade point averages at other colleges.

    a,b = 0 (2.6 through 4.0 - general transfer)
    c,d = 1 (below 2.6 - problem transfer)

11. HSGPA = What was your high school grade point average?

    a,b = 0 (2.6 through 4.0 - low risk)
    c,d = 1 (below 2.6 - high risk)

12. COMAJOR = What is your major area of study?

    a = 0 (business major)
    b = 1 (other major or no major)

PRETUCE = This is the first administration of the Test of Understanding of College Economics.

PREEAE = This is the first administration of the economics achievement exam.

MATHACH = This is the math achievement exam.

NDREAD = This is the Nelson-Denny reading comprehension exam.

POSTUCE = This is the second administration of the Test of Understanding of College Economics.

POSTEAE = This is the second administration of the economic achievement exam.

Appendix C

REVISED TEST OF UNDERSTANDING COLLEGE ECONOMICS

MACRO · FORM A

MAKE NO MARKS IN THIS BOOKLET. MARK YOUR ANSWERS ON THE ANSWER SHEET PROVIDED. USE PENCIL ONLY. DO NOT USE A BALL POINT PEN.

MACRO FORM A

1. Which of the following would be regarded by economists as "investment" as that term is used in national income analysis?

   A. the purchase of a corporate bond
   B. the purchase of an existing house
   C. the construction of a new factory
   D. the deposit of savings in a commercial bank

2. The economy is in recession and one of the congressional committees is holding a hearing to get ideas about what ought to be done. One of the witnesses—economist Smith—says that Congress ought to cut taxes, while another witness—economist Jones—says Congress ought to keep taxes the same, but authorize increases in government expenditures.

   Which of the following best interprets this situation?

   A. Smith and Jones obviously don't subscribe to the same theory as to how the level of GNP is determined by the level of aggregate demand.
   B. If Congress follows Smith's advice the effect on unemployment will be the opposite from the effect of following Jones' advice.
   C. Either of these policies would raise employment, but Smith's suggestion will raise consumption expenditures while Jones' will not.
   D. The main difference between Smith and Jones concerns the relative desirability of private expenditures versus government expenditures.

REVISED
TEST OF UNDERSTANDING IN COLLEGE ECONOMICS
MACRO FORM A

Directions

1. Do not open this test booklet until you are told to do so.
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3. Enter the information requested on the separate answer sheet before beginning the test. Remember: use a pencil: do not use a ballpoint pen.
4. This test consists of 30 questions or incomplete statements. for each of which you are to select the **one best answer.** In marking your answers on the separate answer sheet:
   - Make heavy black marks that will fill the answer space completely.
   - Erase cleanly any answers you wish to change.
   - Make no stray marks on the answer sheet.
5. Hand in both this test booklet and your separate answer sheet after you have marked your answer to all 30 questions.

Prepared By
The Committee for a College-Level Test of Economic Understanding
of the
Joint Council on Economic Education
1212 Avenue of the Americas
New York, NY 10036/(212) 582-5150

JCEE
Checklist
No. 305

3. Individuals will generally want to hold larger money balances if:

A. interest rates and income both fall.
B. interest rates and income both rise.
C. interest rates fall and income rises.
D. interest rates rise and income falls.

4. "Unemployment last month was 3.6% of the work force, a slight reduction from the previous month. For the past fifteen months, unemployment has been under 4% of the work force. Consumer prices last month increased by one-tenth of a percent -- a total gain of 1% over the level of one year ago. Total production of goods and services is projected to be 5% higher this year than it was in the previous year."

Which of the following policies would be most appropriate?

A. reliance on existing automatic economic stabilizers
B. an increase in both personal and corporate income taxes
C. the introduction of additional corporate tax incentives designed to encourage investment
D. minimum wage legislation to increase the basic pay and expand the number of workers covered by minimum wages

5. Over the past 100 years in the United States, the average number of hours worked per week has declined, while both money wages and real wages have continued to rise. What factor is primarily responsible for the trend in hours worked and in real wages?

A. reduced unemployment
B. reduced profit margins
C. increased transfer payments
D. increased output per hour worked

6. Inflation will be more difficult for the monetary authorities to contain if most people expect a rapidly rising price level, because:

A. the velocity of circulation tends to fall when the public anticipates inflation.
B. sellers raise their prices with no regard for demand when their costs have risen.
C. expectations of rapid inflation reduce the opportunity cost of holding money.
D. expectations of rapid inflation reduce the public's willingness to hold money balances.

7. Assume that between 1972 and 1982 GNP in a certain economy increases from $1 trillion to $2 trillion, and the appropriate index of prices increases from 100 to 200.

Which of the following expresses GNP for 1982 in terms of 1972 prices?

A. $1½ trillion
B. $1 trillion
C. $2 trillion
D. $4 trillion

8. "... the more people there are in a country, the richer its people ought to be because of the advantage of division of labor."

Which of the following economic principles throws serious doubt on the quotation?

A. value added
B. comparative advantage
C. marginal propensity to consume
D. diminishing marginal productivity

9. What is one economic difference between increasing federal purchase of goods and services at a time when unemployment is at 10 percent and at a time when unemployment is at 5 percent?

A. At 10 percent unemployment, it is more likely that the programs would be possible without a sacrifice of private goods.
B. At 5 percent unemployment, it is more likely that the programs would be possible without a sacrifice of private goods.
C. At 10 percent unemployment, the programs are more likely to influence prices than real output.
D. At 5 percent unemployment, the programs are more likely to influence real output than prices.

10. Other things being equal, which of the following policies is likely to be the most effective in correcting a nation's balance-of-payments deficit due to an excess of merchandise imports over merchandise exports?

A. exchange rate appreciation and domestic recession
B. exchange rate appreciation and domestic inflation
C. exchange rate depreciation and domestic recession
D. exchange rate depreciation and domestic inflation

11. "Because of rapidly rising national defense expenditures, it is anticipated that Country A will experience a price inflation unless measures are taken to restrict the growth of aggregate private demand. Specifically, the government is considering either (1) increasing personal income tax rates, or (2) introducing a very tight monetary policy."

If the government of Country A wishes to minimize the adverse effect of its anti-inflationary policies on economic growth, it should:

A. use the tight money policy because it restricts consumption expenditures more than investment.
B. use the personal income tax increase because it restricts consumption expenditures more than investment.
C. use the tight money policy because the tax increase would restrict investment more than it restricts consumption expenditures.
D. use either the tight money policy or the personal income tax rate increase because both depress investment equally.

12. In today's "fractional reserve" banking system in the United States, the reserve requirements imposed on commercial banks:

A. are becoming obsolete because actual reserves greatly exceed the requirements.
B. are essentially averages of the amounts needed to meet the public's demands in good times and bad.
C. are in excess of what is normally needed, in case people become uneasy over the safety of their bank deposits.
D. are primarily intended to set a limit on the total money supply rather than to serve as protection against bank runs.

13. An increase in aggregate demand would tend to result from a government reduction in:

A. tax rates.
B. transfer payments.
C. the fiscal deficit.
D. purchases of goods and services.

14. Suppose that the U.S. commercial banking system holds $1 billion in excess reserves, and that the banks want to keep $0.5 billion in excess reserves. If the required reserve ratio is 20%, and other things remain constant, what is the limit to demand deposit expansion in the system?

A. $0.5 billion
B. $2.0 billion
C. $2.5 billion
D. $5.0 billion

15. Which of the following groups of people is most likely to benefit from a period of unanticipated inflation, assuming that the composition of their assets and liabilities remains unchanged?

A. those whose assets include a pension, a savings account, and a mortgage, and who have no liabilities
B. those whose assets include a house and a car, and whose liabilities include a mortgage and an automobile loan
C. those whose assets include corporate bonds, a savings account, and a house, and whose only liability is a mortgage
D. those whose assets include a savings account, government bonds, and a paid-up insurance policy, and who have no liabilities

16. "The earnings of factory workers have gone down 5% in the last year, reflecting a drop in employment. Over 8% of the civilian work force is now unemployed. The cost of living was at a record high last month and is up 3.2% over the past four months. Inventory purchases by business have been cut sharply in some lines, mainly hard goods."

Which is the most serious problem faced by economic policy makers suggested in the preceding statement?

A. Public pressures may force policy makers to attempt to increase employment levels even though unemployment is not a significant problem.
B. Federal Reserve policy makers may experience strong political pressure to decrease the money supply when they want to increase it.
C. Employers often refuse to cooperate with policy makers by concurrently lowering the compensation of their workers while raising the prices of their finished products.
D. Commonly used stabilization action designed to curb inflation tends to aggravate an unemployment problem concurrently.

17. Which of the following makes up the largest part of the money supply in the United States?

A. demand deposits
B. gold certificates
C. national bank notes
D. Federal Reserve notes

18. "The gap between actual and potential output for this year as a whole can be estimated at 6% to 7% of total output. The increase in stock of plant and equipment per worker has been slowed during the past five years following the failure of market demand to expand during this time. Wholesale prices are virtually unchanged from one year ago. After seasonal adjustment, the jobless total for the past year came to 6.8% of the civilian labor force, a rate the same as three months ago."

Which of the following policies would be the most appropriate?

A. reducing the federal government's outstanding debt
B. purchase of securities by the Federal Reserve banks
C. increasing both corporate and personal income taxes
D. shortening the length of time during which unemployed workers can draw unemployment compensation

19. A $7.7 billion tax cut was accompanied by a $9 billion increase in consumer spending in the same year. The most probable reason why consumer spending increased by more than taxes were reduced is that:

A. the tax cut reduced interest rates which in turn stimulated consumer borrowing.
B. the tax cut induced more transfer payments which in turn spurred consumer spending.
C. lower taxes required lower government spending which in turn encouraged private spending.
D. additional spending by those with higher take-home pay generated increased income and spending by still others.

20. The central bank raised the discount rate it charged on loans to commercial banks. A critic who believed that market rates of interest should be kept low said that the central bank should instead have increased the legally required reserve ratios of the commercial banks. Which of the following is true of the criticism?

A. It is self-contradictory.
B. It is based on correct economic analysis.
C. It confuses interest rates with discount rates.
D. It confuses monetary policy with fiscal policy.

21. "If the value of output in an industry increases by 4% per year, and workers receive a wage increase of 4% per year, then nothing is left for increasing the compensation of other factors of production."

Which one of the following best describes this quotation?

A. It is essentially correct.
B. It is incorrect because it confuses income with output.
C. It is incorrect because wages are less than 100% of total factor payments.
D. It is incorrect because the increase in wages actually reduces the real income of all other factors of production.

22. Assuming that other things remain unchanged, an autonomous increase in government expenditures has an effect upon the Gross National Product (GNP) similar to that of:

A. an increase in taxes.
B. an increase in productive capacity.
C. an induced decline in consumer spending.
D. an autonomous increase in private investment.

23. Does the tendency for federal tax receipts to drop in recessions and increase in booms make economic fluctuations greater or smaller? Why?

A. Greater, because it reduces the effect of the "built-in stabilizers."
B. Greater, because it increases and decreases people's spending power at just the wrong time.
C. Smaller, because it increases and decreases people's spending power at just the right time.
D. Smaller, because it forces the government to increase and decrease tax rates at just the right time.

24. "When the Federal Reserve puts up interest rates, one of the most severe effects is that interest costs of home mortgages go up, which drives up the aggregate price of housing. It would make more sense to decrease bank reserve requirements for housing loans, while increasing reserve requirements for other loans, thus making it attractive for banks to channel proportionally more capital into housing construction."

Is the last sentence of the quotation based on a correct understanding of the powers and functions of the Federal Reserve? Why or why not?

A. Yes, because changing the reserve requirements for housing loans is the method the Federal Reserve uses to change interest rates on mortgages.
B. No, because the Federal Reserve System imposes legal reserve requirements on bank deposits, not on loans.
C. Yes, because member banks allocate credit to different classes of borrowers according to reserve requirements on different kinds of loans.
D. No, because the Federal Reserve imposes the same legal reserve requirement on all loans of whatever type.

25. Fiscal policy advisor Jones wants to increase aggregate demand while monetary policy advisor Smith wants to reduce aggregate demand. Which of the following combinations of fiscal and monetary policies would the conflicting policy advisors suggest?

A. The government decreases taxes; the Federal Reserve buys bonds in the open market.
B. The government decreases taxes; the Federal Reserve sells bonds in the open market.
C. The government decreases transfer payments; the Federal Reserve increases the reserve requirement.
D. The government decreases taxes and governmental spending by the same amount; the Federal Reserve increases the discount rate.

26. "The more money there is in the economy, the more people spend. The more people spend, the higher is national income. Therefore, the greater the supply of money, the better off people are."

Is the quotation most likely to be correct or incorrect? Why?

A. Correct, because an increase in spending leads to an increase in real income.
B. Incorrect, because real income is limited by the economy's capacity to produce.
C. Correct, because the amount of money in the economy determines how well off people are.
D. Incorrect, because more money in the economy does not usually lead to more spending.

27. Given that two of the goals of economic policy are growth of output and stable prices, increased taxes is the preferred method of financing government expenditures when:

A. the interest rate is low.
B. corporate profits are low.
C. the economy is experiencing inflation.
D. labor's share of national income is high.

28. Education is sometimes called "investment in human capital." Is this usage valid? Why?

A. Yes. Education and productive equipment both raise productivity, and an opportunity cost must be paid before productivity rises.
B. No. The essence of capital is the durability of tangible physical machinery and equipment. Education is an intangible service, and services do not have durability.
C. Yes. Education reduces the ratio of labor force to total population in exactly the same way that employment of capital goods does.
D. No. Unlike capital goods and equipment, much education is directed toward the enrichment of life and other social goals, rather than toward higher economic productivity.

29. "Unit sales of durable goods last month were unprecedented. Recent price rises have lifted indexes toward the highest level of the century. Average wholesale price increases have been in excess of 1% a month during the past year. Unit wage costs, as a result of soaring wage rates without equal gains in productivity, are 5% higher for durable goods now than in the third quarter of last year, and 4% higher for nondurable goods. Unemployment is not a real problem at this time."

Which of the following policies would be most appropriate?

A. purchase of securities by the Federal Reserve banks
B. increase of the reserve requirements of commercial banks
C. imposing of price ceilings on sales made by wholesale establishments
D. lengthening of the maximum repayment period on installment credit for purchases of consumer goods

30. "Personal income, retail sales, and industrial production were all hitting new peaks during the first quarter of this year. The nation's total output of goods and services was rising fast (up 2.4% in the first quarter, alone, over the final quarter of last year). The consumer price index stands exactly where it stood when the recovery upsurge started. The rate of unemployment, seasonally adjusted, rose from 8% of the labor force, where it has stood so far this year, to 8.1% last month."

Which of the following policies would be most appropriate?

A. reducing taxes on personal and corporate income
B. selling securities by the Federal Reserve banks
C. raising the reserve requirements of commercial banks
D. increasing the discount rate which the Federal Reserve charges commercial banks

Appendix C - continued

TEST ITEM MATRIX

MACRO FORM A

Content Categories	Cognitive Categories			No. of Questions
	Recognition & Understanding	Explicit Application	Implicit Application	
A. Measuring Aggregate Economic Performance	1	7, 15	21*X*	4
B. Aggregate Supply, Productive Capacity, and Economic Growth	5, 28	8*X*, 26	11*X*	5
C. Income and Expenditure Approach to Aggregate Demand and Fiscal Policy	13, 22, 23, 27	9	2*X*, 19	7
D. Monetary Approach to Aggregate Demand and Monetary Policy	12, 17, 24*X*	3, 6, 14	20*X*	7
E. Policy Combinations and Practical Problems of Stabilization Policy		10, 25	4*X*, 16*X*, 18*X*, 29*X*, 30*X*	7
No. of Questions	10	10	10	30

MACRO FORM B

1. If an economy's stock of privately-owned capital goods is greater at the end of the year than it was at the beginning, then over this period it must be true that:

   A. net private domestic investment is positive.
   B. depreciation exceeds net private domestic investment.
   C. depreciation exceeds gross private domestic investment.
   D. net private domestic investment exceeds gross private domestic investment.

QUESTIONS 2 AND 3 ARE BASED ON THE FOLLOWING QUOTATION:

"Arguing for import restraints that were allegedly destined to heat up inflation placed us in a difficult position. We would point out that lost jobs meant lost taxes, an increase in unemployment and welfare benefits, and the start of a 'ripple effect' that could swell into a wave that could wipe out the economies of whole communities. However, all too often these arguments did not weigh as heavily in the Presidential scales as the fear of inflation."

2. What economic concept or principle is most similar to the "ripple effect" described in the quotation?

   A. multiplier
   B. value added
   C. capital widening
   D. quantity theory of money

3. The quotation is mainly concerned with jobs in American industries that compete with imports, ignoring American industries that sell abroad. If other countries do not retaliate against our import restraints, which of the following best describes the effect of restricting imports into this country on jobs in American export industries? Why?

   A. There would be virtually no effect on jobs in export industries because such industries are not affected by import restraints.
   B. Jobs in export industries would be reduced because of the "ripple effect" from import-competing industries.
   C. Jobs in export industries would be increased because fewer imports mean depreciation of foreign currencies relative to the dollar and more American exports.
   D. Jobs in export industries would be reduced because fewer imports mean depreciation of foreign currencies relative to the dollar and less American exports.

4. If people suddenly shift much of their cash to their checking accounts rather than keeping it in their pockets or at home, we can infer that the demand for money:

   A. has increased.
   B. has decreased.
   C. has changed, but we really don't know in what direction.
   D. hasn't changed, but the composition of money balances has changed.

REVISED
TEST OF UNDERSTANDING IN COLLEGE ECONOMICS
FORM B

Directions

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No. 304

5. If total demand declines relative to the productive capacity of the economy, which of the following is most likely to occur?

A. inflation
B. increased unemployment
C. a slower growth rate
D. a government budgetary surplus

6. The best way of stating the relation between the "law of diminishing returns" (= diminishing marginal product) and the role of technological change, is:

A. if the law were true, there could be no technological change.
B. if the law were true, there could be technological change, but it would not raise overall productivity.
C. if there is technological change, the law's effects are postponed, but the law is still valid.
D. if there is technological change, the law is backwards—there are increasing marginal returns.

7. If a firm buys $1,000,000 worth of raw materials, pays wages and salaries of $500,000, rent of $100,000, interest and dividends of $100,000, and sells its output for $2,000,000, the contribution of this firm to Gross National Product (= value added) is:

A. $ 700,000.
B. $1,000,000.
C. $1,700,000.
D. $2,000,000.

8. If everyone correctly anticipated the rate of inflation, how would the rate of inflation compare with the rate of interest on loans without risk?

A. The interest rate would be higher.
B. The inflation rate would be higher.
C. There would be no difference between the two.
D. Sometimes one would be higher, sometimes the other.

9. "I have pledged myself to my constituents to do everything in my power to reduce the federal government's debt. This means a budget surplus every year until our goal has been reached. It means reducing federal expenditures and, if necessary, increasing tax rates. Under present circumstances of full employment and steady prices, we can afford to bear the burden of debt ourselves instead of passing the burden on to our children and grandchildren."

If the expressed wishes of the Congressman quoted were attained, what changes could be expected in the future (assuming other things remain the same)?

I. increased rates of economic growth

II. increased unemployment and idle capacity

A. I only
B. II only
C. both I and II
D. neither I nor II

10. Most demand deposits (checking accounts) in the U.S. commercial banking system originate through:

A. increases in the stock of monetary gold.
B. increases of loans and investments by banks.
C. deposits of currency in banks by individuals.
D. extensions of credit to customers by banks and business firms.

11. "Consumers' eagerness to buy durable goods, such as cars and houses, in advance of expected price increases has resulted in an increase in interest rates because those items frequently require financing."

It follows from this statement that:

I. Inflationary expectations increase the demand for loanable funds.

II. Bond prices will be driven up by consumers trying to borrow money to finance purchases.

A. I only
B. II only
C. both I and II
D. neither I nor II

12. "Last month new highs were reached both in industrial employment and industrial wages. Unemployment is at its lowest mark in years only slightly over 4% of the work force. In the week just ended, steel production reached the highest mark in history. The latest reported increase in the cost of living, with prices up 1.4% in the month, was slightly higher than the average increase for the past eight months."

Which of the following policies would be the most appropriate?

A. purchase of securities by the Federal Reserve banks
B. lower taxes for corporations that increase investment
C. an across-the-board increase in personal income taxes
D. increase of the maximum period unemployed workers may draw unemployment compensation

13. A Congressman worried about the effects of inflation on the working person, was quoted as saying "the way to beat inflation is to have the government lower taxes so people can afford the prices." This statement is most likely to be:

A. correct, since by lowering taxes, the effects of inflation would be offset and people could afford to pay higher prices.
B. incorrect, because decreasing taxes would enable government to increase spending, which would lower the price level.
C. correct, because decreasing taxes would have a multiplier effect on the equilibrium level of gross national product and consequently act to increase employment.
D. incorrect, since a reduction in taxes would increase aggregate demand without necessarily increasing output and would result in more inflation.

14. "On the whole, statistics show that the velocity of money is high when the interest rate is high."

The fact related in this quotation is most nearly consistent with the idea that:

A. banks "ration credit."
B. rapid growth in GNP occurs when velocity is high.
C. velocity goes up when the supply of money goes up.
D. the interest rate is a measure of the cost of holding money balances.

15. A large government debt may be inflationary if:

A. the value of the debt is in excess of 50 percent of the nation's GNP.
B. businessmen become so concerned about the debt that they cut back investment expenditures.
C. the government attempts to liquidate the debt rapidly by increasing tax rates and cutting back government expenditures.
D. the debt induces the nation's central bank to maintain low interest rates when a more restrictive monetary policy is appropriate.

16. "Unemployment last month, at 7.5% of the work force, continued to be unduly high. Further rounds of price increases in the steel industry are expected to intensify the trend of increasing wholesale and retail prices experienced during the past eighteen months. The rate of expansion in output of goods and services in the U.S. has for the past three years been below the thirty-year average."

Which of the following policies would tend to help improve the economic situation outlined above?

I. Additional federal tax reductions for firms which invest in new plant and equipment.

II. A change in federal government purchasing practices to reward firms and industries showing restraint in price increases.

A. I only
B. II only
C. both I and II
D. neither I nor II

17. During a period of economic stagnation, Congress passes a tax cut while the monetary authorities hold the money supply constant. How would the resulting change in gross national product (GNP) be related to the velocity of circulation of money (V)?

A. GNP would increase provided V rises.
B. GNP would increase provided V falls.
C. GNP would not respond to the tax cut regardless of whether V goes up or down.
D. GNP would increase by an amount equal to the tax cut times the multiplier regardless of whether V goes up or down.

18. If the economy is operating at full capacity, which one of the following policies would NOT be appropriate to increase the rate of economic growth?

A. developing technology and managerial ability
B. encouraging an increase in personal consumption
C. improving the skill and knowledge of people through increased education
D. encouraging an increase of private savings and investment in capital goods and equipment

19. The relation between an autonomous increase in government spending on goods and services, and an autonomous increase in private investment spending, is that:

A. they have similar effects on aggregate demand.
B. they have similar effects on aggregate supply.
C. private investment must equal saving; government spending must equal taxes.
D. private investment has a "multiplier" effect, but government spending does not.

20. Which of the following monetary policies would be most effective in combating inflation?

A. Reduce the discount rate.
B. Sell government securities on the open market.
C. Lower margin requirements on security purchases.
D. Reduce the reserve requirements of commercial banks.

21. If the Federal Reserve supports the price of government bonds by buying them whenever their prices tend to drop, the effect of this policy will be to:

A. reduce inflation by keeping interest rates high.
B. keep interest rates low and expand bank reserves.
C. make it much more difficult for banks to obtain reserves.
D. make Treasury refinancing of the public debt much more difficult.

22. Which of the following would most likely result if the federal government increased its spending without increasing its tax revenues during a period of full employment?

A. A recession
B. An inflation
C. A reduction in interest rates
D. A decrease in the national debt

23. What can you conclude if the increase in nominal GNP is greater than the increase in real GNP during the same year?

A. Real GNP has increased while prices have risen.
B. Real GNP has increased while prices have fallen.
C. Nominal GNP has increased while prices have fallen.
D. Nominal GNP has increased while prices have remained constant.

24. The limit of an economy's total productive capacity at any given time is set by:

A. the amount of money in circulation.
B. government regulations and spending.
C. business demand for goods and services.
D. the quantity and quality of its productive resources.

25. If acute inflation were occurring in a relatively full employment economy, appropriate and consistent government policies might involve a combination of:

A. a government deficit, the sale of securities in the open market, and a higher discount rate.
B. a government deficit, the purchase of securities in the open market, and a higher discount rate.
C. a government surplus, the purchase of securities in the open market, and a lower discount rate.
D. a government surplus, the sale of securities in the open market, and a higher discount rate.

26. The meaning of the statement, "Every government has a fiscal policy, whether it realizes it or not," is best expressed by which of the following explanations?

A. Every government is forced to do something about depression and inflation, whether it wants to or not.
B. In many cases, decisions to spend money must be made even though the expenditure runs contrary to the policy indicated.
C. Every government must decide on a tax and expenditure program, which is bound to have effects upon the economy and upon GNP.
D. Every government must make decisions about the quantity of money in the economy, which is bound to influence credit conditions and the rate of interest.

27. "We would certainly agree that Keynesian deficits are not much help against recession. For an anti-recession tool, we would think in terms of tax rate reduction and other supply side stimulus."

Is either or both of the following evaluations of the quotation correct?

I. The two sentences of the quotation are inconsistent in the short run because tax rate reductions, when used as an anti-recession tool, can bring about a Keynesian deficit.

II. The two sentences of the quotation are consistent in the long run because tax rate reductions can stimulate the economy and increase tax receipts, thereby reducing Keynesian deficits.

A. I only is correct.
B. II only is correct.
C. Both I and II are correct.
D. Neither I nor II is correct.

28. If Congress and the Federal Reserve both wished to encourage growth of productive capacity in an economy already very close to full employment, it would be most appropriate to:

A. use a "tight money" policy to decrease government spending.
B. raise interest rates by buying securities on the open market.
C. reduce taxes on consumption, such as sales and income taxes, and increase government transfer payments.
D. reduce interest rates by open market operations and raise taxes on consumption, such as sales and income taxes.

29. If commercial banks hold demand deposits of $100,000, reserves of $30,000, and the required reserve ratio is 20 percent, what is the maximum amount by which the banking system can expand the money supply?

A. $ 20,000
B. $ 50,000
C. $ 60,000
D. $120,000

30. A group of economists estimated that the value of the multiplier was 3. An increase in government expenditures of $10 billion, however, resulted in a rise in real GNP (GNP in constant dollars) of only $20 billion. Which of the following could explain this discrepancy?

I. The economy had already been close to full employment.

II. An increased demand for money caused interest rates to rise and private investment to fall.

A. I only
B. II only
C. both I and II
D. neither I nor II

Appendix C - continued

TEST ITEM MATRIX

MACRO FORM A

Content Categories	Cognitive Categories			No. of Questions
	Recognition & Understanding	Explicit Application	Implicit Application	
A. Measuring Aggregate Economic Performance	1, 8	7, 23		4
B. Aggregate Supply, Productive Capacity, and Economic Growth	5, 18, 24	6	28	5
C. Income and Expenditure Approach to Aggregate Demand and Fiscal Policy	2X, 19, 22, 26X		9X, 13X, 27X	7
D. Monetary Approach to Aggregate Demand and Monetary Policy	10	4, 14X, 20, 29	11X, 21	7
E. Policy Combinations and Practical Problems of Stabilization Policy		3X, 17, 30X	12X, 15, 16X 25	7
No of Questions	10	10	10	30

Appendix D

ECONOMICS ACHIEVEMENT EXAM

Directions: Read each question and all the answers carefully. Select the BEST answer to each question and mark your choice on the standardized answer sheet. Do not mark on this exam.

1. The opportunity cost of a resource is the:
   a. dollar price of that resource
   b. next highest valued use of a resource
   c. maximum value of the resource in use
   d. least-valued alternative value of the resource

2. Movement along the production possibilities curve would imply that:
   a. the labor force has grown
   b. productivity has increased
   c. less productivity is possible
   d. an alternative maximum level of production exists

3. The President of the United States promises to simultaneously produce more guns without any decreases in the production of other goods. Under which of the following conditions could such a promise be valid?
   a. if the U.S. were producing at a point on its production possibilities curve
   b. if the U.S. were producing at a point inside its production possibilities curve
   c. if the U.S. were producing at a point to the right of its production possibilities curve
   d. only if the production possibilities curve moved to the left

Production Possibilities
Table A

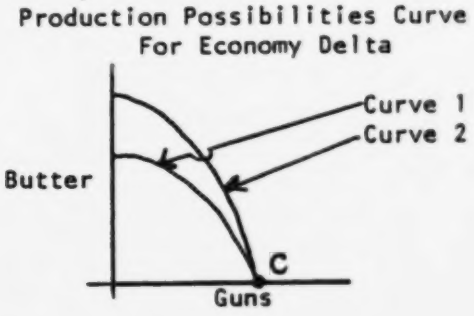
Butter	70	60	44	25	0
Guns	0	1	2	3	4

Production Possibilities
Table B

Butter	20	16	12	8	0
Guns	0	1	2	3	4

4. In comparing Table A and Table B above, one can conclude that:
   a. only Table A would result in a straight-line production possibilities curve
   b. Table B would involve less production of both guns and butter than would Table A
   c. Table B would be represented graphically as a straight line and is more representative of a real economy than is Table A
   d. Table A would be represented graphically as a curved line and be more representative of a real economy than is Table B

The graph below should be used to answer question #5.



5. What would cause the production possibilities curve for Economy Delta to move from curve 1 to curve 2?
   a. an increase in all resources
   b. improvement in the technology for butter production
   c. emphasis on gun production such as that illustrated by point C
   d. improvement in the technology for gun production

6. Evaluate each of the following statements and determine which is true based on the goal of achieving maximum efficiency in the distribution of resources.
   a. operating at a point below the produciton possibilities curve will maximize long run production because it prevents over use of resources in the short run.
   b. operating at a point beyond the production possibilities curve will maximize long run production because points on the curve don't really account for the true capacity of the economy.
   c. operating at a point on the production possibilities curve which stresses use of capital will maximize long run production because capital is a fundamental building block.
   d. operating at any point on the production possibilities curve will maximize long run production because the key to growth is producing all that it is possible to produce.

7. The law of demand states that:

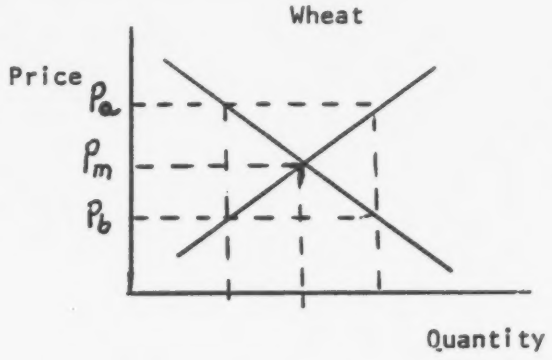
   a. at lower relative prices, a larger quantity demanded will be purchased than at higher relative prices
   b. at higher relative prices, a larger quantity demanded will be purchased than at lower relative prices
   c. there is a direct relationship between price and quantity
   d. as income increases the quantity demanded will increase

8. If the price of foreign cars goes down while the price of U.S. cars remains unchanged, more foreign cars will be purchased and fewer U.S. cars will be demanded. This situation illustrates the:
   a. income effect
   b. output effect
   c. substitution effect
   d. absolute price effect

9. Suppose that goods X and Y are close substitutes and the price of good Y falls. We would expect:
   a. the quantities demanded of both good X and good Y to increase
   b. the quantities demanded of both good X and good Y to decrease
   c. an increase in the demand for good X and a decrease in the quantity demanded of good Y
   d. a decrease in the demand for good X and an increase in the quantity demanded of good Y

10. A new film-making process is discovered that greatly improves the quality of 35mm prints while at the same time significantly reduces the cost of developing and printing. All other things being equal, in the market for cameras, the equilibrium:
   a. price and quantity demanded increase
   b. price is indeterminant and quantity increases
   c. price and quantity both decrease
   d. price increases and quantity decreases

Answer question #11 using the graph below.



11. In the graph above P_m is the market price for wheat. Certain farmers are dissatisfied with this price because it does not provide enough revenue to cover their costs. Which of the following solutions would result in the most efficient use of farm resources?
   a. Introduce government subsidies to cause the market price to rise to P_a increasing sales and overall farm income.
   b. Government interceding by lowering the price to P_b increasing the quantities which are demanded thus increasing sales.
   c. Introducing a price floor thus holding the price below P_m and driving out inefficient producers.
   d. Operating at P_m and letting the market determine the most efficient use of resources.

12. Evaluate each of the following statements and determine which is true based on pure market theory.
   a. shortages are a result of prices existing above equilibrium and are best corrected by introducing government price floors
   b. surpluses are a result of price existing below equilibrium and are best corrected by introducing government price ceilings
   c. shortages are a result of prices existing below equilibrium and if not corrected by the government will result in reduced demand
   d. surpluses are a result of price existing above equilibrium and will tend to be eliminated by the market if government does not intervene

13. The circular flow model shows that goods and services produced by business firms are sold through the:
    a. credit market
    b. product market
    c. factor market
    d. resource market

14. It can be concluded that the circular flow is in equilibrium when:
    a. all leakages from the system are equal to all injections into the system
    b. most fo what households earn is spent in the product market
    c. total demand for goods is proportional to total supply
    d. most factors of production are employed

15. When planned investment exceeds planned savings the actual level of income will:
    a. decrease
    b. increase
    c. remain constant
    d. change in any direction

16. Suppose that firms do not accumulate or decrease unintended inventories. Instead they change prices to clear the market. If intended savings exceeds intended investment, prices will:
    a. rise
    b. fall
    c. remain stable
    d. be unpredictable, but be somewhat more likely to rise than to fall

17. What would happen to an economy if the total planned rate of production exceeded the total planned rate of expenditure in the short run?
    a. very little, as planned spending and planned production are basically unrelated
    b. producers would decrease production and total expenditures would decrease but by less
    c. investors would increase thier planned expenditures causing total expenditures to rise
    d. consumers would tend to save less and spend more as a result of these circumstances

18. Evaluate each of the following statements and determine which is true based on the concept of the circular flow in a closed private economy.
    a. actual savings always equals actual investment
    b. income must always be equal to actual consumption plus actual investment
    c. income must always be equal to actual consumption plus actual savings
    d. all of the above are true

19. One method of calculating gross national product is to add together:
    a. investment, consumption, gross profits, and net exports
    b. consumption, investment, government spending and net exports
    c. wages, gross profits, net investment, and net exports
    d. depreciation, wages, interest, profit, and rent

20. Which of the following is a final good and would be included in the gross national product?
    a. Ford Motor Company's purchase of paint to be used in spraying new cars
    b. the sale of stock in General Motors from Professor Kendra to Professor Reichheld
    c. the current sale of a famous 16th century painting by the Cleveland Art Museum
    d. the purchase of a scotch pine to be used as a Christmas decoration in a private home

Use the following information to answer question # 21.

Personal taxes	$ 180
Transfer payments and interest on the national debt	85
Corporate Income Taxes	140
National Income	1800
Undistributed Corporate Profit	210
Social security contributions	300

(All figures given in billions of dollars)

21. Using the accounts above calculate Personal Income.
    a. $ 1055 billion
    b. $ 1235 billion
    c. $ 2356 billion
    d. the correct answer is not goven

22. Which of the following national income accounts could be considered a leakage in the circular flow?
    a. indirect business taxes
    b. personal income taxes
    c. personal savings
    d. all of the above

23. Based on the theory of national income evaluate each of the following statements and determine which is true?
    a. It is more effective to measure net advances in economic growth using NNP than GNP.
    b. It is necessary to measure changes in GNP over time in adjusted constant dollar terms if comparisons of year to year are to be made.
    c. GNP measures the well-being of an economy more effectively when a per capita basis is used.
    d. All of the above statements are true.

24. Which of the following statements is correct?
    a. $MPS = \frac{\Delta C}{\Delta \text{income}}$
    b. consumer expectations about the future is a nonincome determinant of investment spending
    c. the investment multiplier is equal to $\frac{1}{MPS}$
    d. the breakeven point is where savings and spending are equal

25. In the full economy the effect of a decrease in taxes on the savings function is:
    a. movement up along the savings function
    b. movement down along the savings function
    c. a shift upward of the entire savings function
    d. a shift downward of the entire savings function

Use the following table in answering question number 26.

TABLE C

Real National Income	Consumption	Investment	Government	Taxes	Savings after Taxes
$1500	$1340	$120	$100	$100	$ 60
1600	1420	120	100	100	80
1700	1500	120	100	100	100
1800	1580	120	100	100	120

26. Based on the schedules in Table C above, at what level of real national income will equilibrium in the economy occur?
    a. $1500
    b. $1600
    c. $1700
    d. $1800

27. If the full-employment budget generates a surplus of $50 billion, then we can say that:
    a. at less than full employment, the actual budget could not generate a surplus of $25 billion
    b. with an inflationary gap, the actual budget could generate a surplus of $60 billion
    c. at less than full employment, the actual budget could not generate a deficit of $50 billion
    d. an output gap would always generate a surplus greater than $50 billion

Use the following situation to answer question #28.

Situation:
1. The index of leading indicators has been falling for four consecutive months.
2. Investment in unplanned inventories has been rising.
3. Interest rates have been increasing.

28. To deal with the situation detailed above, government should:
    a. increase taxes because an output gap is developing and government will need more funds to balance the budget
    b. reduce taxes to encourage more saving thereby encouraging future growth
    c. increase government spending because an output gap will soon cause a recession
    d. decrease government spending to offset an inflationary gap

29. Which of the following statements is correct based on Keynesian employment theory?
    a. balancing the budget is highly desirable to avoid serious over-spending on the part of the government
    b. by spending and taxing in equal amounts government will have no net effect on equilibrium income
    c. to correct for demand-pull inflation in the economy, government should increase taxes and decrease spending
    d. to correct for a downturn in the economy government should increase taxes and decrease spending

Appendix D - continued

TEST ITEM MATRIX

Cognitive Level / Economic Concept	Facts and Knowledge	Concepts	Application	Analysis	Synthesis	Evaluation
Production Possibilities (Programs C and D)[1]	1[2]	2	3	4	5	6
Market Equilibrium (Programs E and F)	7	8	9	10	11	12
Circular Flow (Program G)	13	14	15	16	17	18
National Income Accounting (Programs K & L)	19	20	21	22	--	23
Employment Theory (Programs N & O)	24	25	26	27	28	29

[1]Designates the computer assisted program module(s) being tested.

[2]Refers to thequestion number on the exam.

Appendix E was removed from this document prior to its being submitted to the ERIC Document Reproduction Service. The Appendix contained the Nelson-Denny Reading Test, Form D. The test is copyrighted and therefore not available from EDRS.

Appendix F

CUYAHOGA COMMUNITY COLLEGE
Western Campus

PRINCIPLES OF ECONOMICS
Math Skills Assessment Test

Directions: Read each question completely. Choose the best answer. Mark the corresponding answer on the standardized answer sheet. Do not guess. If you do not know how to work a problem, skip to the next one. Work carefully. Calculators may not be used.

1. Which of the following most closely approximates the highest level of mathematics you successfully completed in junior high and/or senior high school?

   a. I have not successfully completed any junior high or senior high math courses
   b. General or shop math
   c. Algebra 1
   d. Algebra 2
   e. Geometry/Trigonometry and/or above

2. Which of the following courses most closely approximates the highest level of mathematics you have successfully completed at the college level?

   a. I have not successfully completed any college math courses
   b. 091 College Arithmetic
   c. 095 Basic Algebra 1
   d. 101 Basic Algebra 2
   e. 102 Intermediate Algebra or higher

3. What is the solution to the problem below when rounded to the nearest hundredth?

   a. 1069.27
   b. 1069.28
   c. 1066.276
   d. 1066.28
   e. the correct answer is not given

$$\begin{array}{r} 45.676 \\ 847.329 \\ 21.487 \\ 69.968 \\ +\ 84.816 \\ \hline \end{array}$$

4. Which of the following fractions is equivalent to the fraction 3/8ths?

   a. 9/16
   b. 12/24
   c. 12/16
   d. 12/32
   e. the correct answer is not given

5. If one converts to percents the decimal numbers 12.0, 1.47 and .863, the appropriate percent answers are:

   a. 12%, 14.7%, 86.3%
   b. 1200%, 147%, 86.3%
   c. .12%, 0147%, .00863%
   d. 12%, 14.7%, 8.63%
   e. the correct answer is not given

6. If a number increases from 1.25 to 1.75, by what percent has it increased?

   a. 14-2/7%
   b. 25%
   c. 40%
   d. 50%
   e. the correct answer is not given

7. If a number declines from .9 to .65, by what percent has it declined?

   a. 25%
   b. 27.8%
   c. 38.5%
   d. 72.2%
   e. the correct answer is not given

8. Find 37% of 180.

   a. .002
   b. 37.0
   c. 66.6
   d. 486.5
   e. the correct answer is not given

9. Convert the following fractons to percents: 5/6, 3/12, 1/16:

   a. 5%, 3%, 1%
   b. 30%, 36%, 16%
   c. 83-1/3%, 24-3/4%, 6-2/3%
   d. 83-1/3%, 25%, 6-1/4%
   e. the correct answer is not given

x	15	14	12	9	5	0
y	0	1	2	3	4	5

10. In the chart above, what is the (marginal) change in the quantity of x as y increases from 3 to 4?

    a. 1
    b. -4
    c. -5
    d. -9
    e. the correct answer is not given

Group A		Group B		Group C		Group D	
x	y	x	y	x	y	x	y
1	2	1	1	1	2	1	4
2	9	2	2	2	2	2	3
3	21	3	3	3	2	3	2
4	37	4	4	4	2	4	1

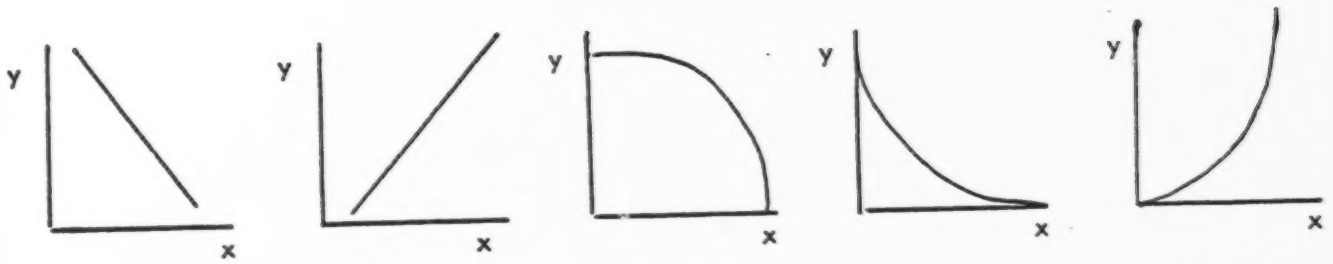
11. Which of the data groups above indicates an inverse proportionately between x and y?

    a. Group A
    b. Group B
    C. Group C
    d. Group D
    e. the correct answer is not given

12. In which of the data groups above does y decrease relative to x?

    a. Group A
    b. Group B
    c. Groups A and B
    d. Groups C and D
    e. the correct answer is not given

Answer questions 13 through 15 using the graphs below.



Graph A Graph B Graph C Graph D Graph E

13. Which of the graphs above best depicts the mathematical relationship indicated by the data set:

y	12	10	8	6	4
x	0	1	2	3	4

a. Graph A
b. Graph B
c. Graph C
d. Graph D
e. Graph E

14. Which of the graphs above best depicts the mathematical relationship indicated by the data set:

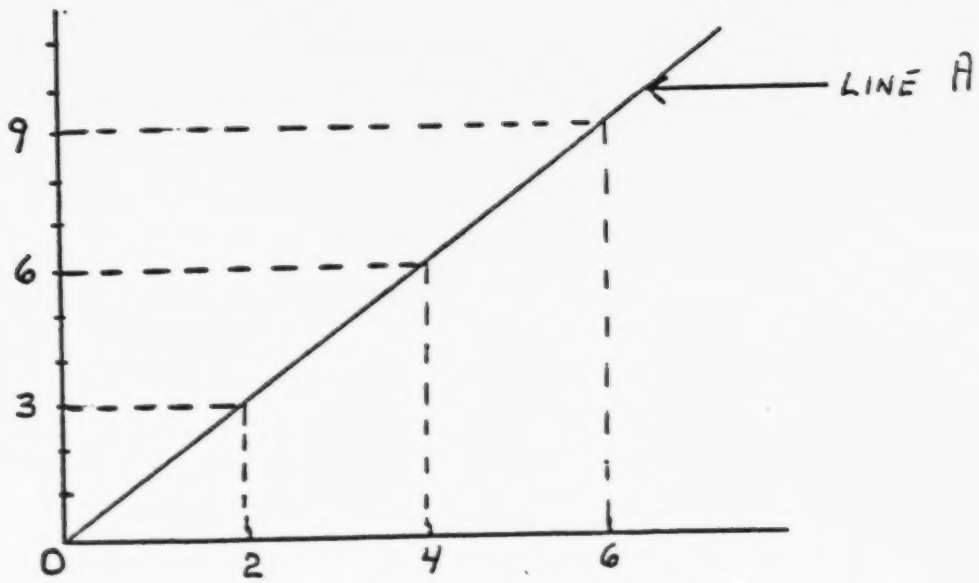
y	1	2	5	10	20
x	0	1	2	3	4

a. Graph A
b. Graph B
c. Graph C
d. Graph D
e. Graph E

15. Which of the graphs above best depicts the mathematical relationship indicated by the data set:

y	14	12	9	5	0
x	0	1	2	3	4

a. Graph A
b. Graph B
c. Graph C
d. Graph D
e. Graph E



16. Compute the slope of line A in the graph above.

    a. 2/3
    b. 1/1
    c. 3/2
    d. 9/1
    e. the correct answer is not given

17. What is the inverse (reciprocal) of the fraction 5/9ths?

    a. 5/9
    b. 9/5
    c. 55-5/9
    d. 18.0
    e. the correct answer is not given

18. Simplify the following complex fraction: $\dfrac{\frac{9}{10}}{\frac{3}{5}}$

    a. 27/50
    b. 12/15
    c. 14/13
    d. 3/2
    e. the correct answer is not given

Student Ages
27
23
22
22
21
20
20
20
19
18

19. Using the ages of the students shown in the table above, compute the average age of all students:

    a. 20
    b. 21.2
    c. 22
    d. 22.2
    e. the correct answer is not given

20. Solve the equation 3X + 4 = 19.
    a. 5
    b. 7-2/3
    c. 15
    d. 23
    e. the correct answer is not given

21. Given the equations Y = 4X + 4 and Y = -8X - 8, solve for Y.
    a. 0
    b. +1
    c. +12
    d. +44
    e. the correct answer is not given

22. If the equation for a line is Y = 4X + 7, what is the slope of that line?
    a. 0
    b. 4
    c. 7
    d. 11
    e. the correct answer is not given

CAR/jk/4914C/ejr/1287

Appendix G

CUYAHOGA COMMUNITY COLLEGE

Business Division
COURSE OUTLINE

Course: 520-161 PRINCIPLES OF ECONOMICS - 4 Credit Hours - Lecture

Course Prerequisites: There are no formal prerequisites for this course. However, students often complete the course Basic Economics 100 before taking this course. It is advisable to do so when the student has not had adequate high school preparation in social sciences. Students are not required to take Basic Economics 100 prior to taking Economics 161--and many do not. It is also useful, though not required, to have successfully completed math courses equivalent to Algebra 102. Again, Algebra 102 is not required. Once a student has completed either of the Principles of Economics courses, the Basic Economics 100 course may not be taken for credit.

Course Description: An introduction to the scope and method of economics, scarcity and resource allocation, basic demand-supply analysis, the mixed economy and its basic components, national income analysis and modern employment theory, money and banking, and economic growth.

Instructor: CHARLES A. REICHHELD, III
Assistant Professor of Business Administration

Quarter: WINTER, 1988

Required: ECONOMICS TODAY, 5th Edition by Roger LeRoy Miller, 1985.
Harper & Row Publishing Inc.
STUDENT LEARNING GUIDE to accompany Miller ECONOMICS TODAY, 1985
Harper & Row Publishing Inc., 5th Edition by Otis W. Gilley

Optional: WALL STREET JOURNAL
(It is strongly suggested that students consider purchase of the optional materials.)

COURSE OBJECTIVES

1. LEARN ECONOMIC VOCABULARY--The student should be able to recognize, define and use economic terminology in classroom discussion, reading assignments, and answering multiple-choice test questions using this vocabulary.

2. LEARN TO APPLY GRAPHING-- The student should demonstrate an understanding of economic graphical models by answering multiple-choice test questions concerning the makeup and use of these models.

3. LEARN ABOUT ECONOMIC PROBLEM SOLVING--The student should develop the ability to use economic analytical tools in making correct decisions in solving hypothetical as well as real economic problem situations.

4. TAKE RESPONSIBILITY FOR LEARNING--The student should develop the ability to learn on his own and use objective economic logic in explaining, predicting and solving economic problems. These will be evaluated by testing on certain areas of reading not necessarily covered by classroom discussion, questioning of a type using rearranged situations (changed from those originally learned) and questioning requiring the prediction of potential problems that might occur given certain economic situations.

5. LEARN TO DISCUSS ECONOMIC ISSUES--The student should develop the ability to relate economic principles to current world situations. This will be evalu- ated on the basis of actual classroom participation.

EVALUATION OF STUDENTS

Core Grade

The core of grading will be objective exams and quizzes. These will be based on your reading and my lectures for the most part and classroom discussion to a lesser degree. Specifically, points will be earned as follows:

*Homework (ISM and problems from text)	50	points (varies at option of professor)
Attendance	86	points (Does not include 1st or last day)
2 Quizzes	80	points
Exam I	100	points
Exam II	100	points
Exam III	200	points - Comprehensive
	616	Total Points (approximate)

Total points may vary during the quarter as unforeseen events occur or as a matter of instructor's discretion. Students are strongly advised to keep track of all scores (a student grade book sheet is provided) to eliminate any doubt in regard to their progress in the course. None of the homework, quizzes, etc. should be discarded until after the final course grade has been received from the College.

A schedule of quizzes and exams can be found on the assignment sheet. The core grade will be based on scoring as follows:

A - 90%
B - 80%
C - 70%
D - 60%

In those few cases where standard evaluative tools are considered by the instructor as inaccurate, your core grade is subject to up to a letter grade change at the instructor's discretion based on the instructor's subjective analysis.

*Note: Homework will not be accepted after the day on which it is due.

Participation

On a regular basis classes will include the opportunity to discuss current events relating to economics (see assignment sheet). Students may increase their grade by as much as a half letter by introducing articles related to the course and/or taking meaningful part in these discussions. Specifically, each topic introduced can be worth 8 points and each day's participation up to 4 points with a total maximum of 8 points per day and 31 points of extra credit per quarter. Articles must be brought to class and are to be posted on the bulletin board after they have been introduced into class. Put your name on the article. Take time to review articles presented by others.

Credit for participation and article introduction must be requested the same day they occur through the use of classroom participation forms. Additionally, students may receive 2 points for each cartoon or joke about or related to economics which they bring in and present that is accepted by the professor.

This policy does not apply to discussion relating to text and lecture. Lecture discussion relates to questioning of lecture and reading materials, discussion of topics or events relating to the work at hand or questioning concerning the relativity of current topics to reality. Should the instructor choose to subjectively change a student's grade, it would be based, in large part, on discussion during the lecture.

See me for an explanation of the reporting system.

WITHDRAWAL FROM COURSE

No student shall be withdrawn by the instructor from this course. Students must be aware of the last day for withdrawal with a "W" grade and act accordingly (see assignment sheet).

INCOMPLETES

A student who receives an "I" must complete all course requirements no later than the end of the 5th week of the academic quarter following the quarter in which the "I" was noted. For an "I" issued in Spring quarter the student has until the 5th week of Fall Quarter. Generally, "I" grades are not issued in this course.

EVALUATION OF THE INSTRUCTOR

The enclosed evaluation can be turned in at any time during the quarter. It is intended to give you a means of expressing your opinion, either critical or supportive, of the class and instructor. If you wish, you may simply write down your comments on a blank piece of paper and turn them in by slipping them under my faculty office door. Do NOT put your name on the evaluation.

WALL STREET JOURNAL AWARD

Students who complete Principles of Economics 161 and 162 at Western Campus are automatically considered as candidates for the Wall Street Journal Award. This award is made to the top student each year based on the following criteria:

1. Mastery of the principles of economics
2. Ability to relate economic principles to business and current world situations both orally and in writing, and
3. Demonstration of a high level of interest and motivation for achievement in economics.

ATTENDANCE

You will receive 2 points for each class you attend. Students will not receive points for classes missed no matter what the reason. These points represent a statement for the value of class attendance. Attendance is taken at the beginning of class so that students who are late may lose the points for that day. Always come up after class if you do happen to be late to discuss obtaining that day's points.

MAKE-UP EXAMS AND QUIZZES

Make-up exams or quizzes will NOT be given unless:

1. the student has a valid excuse - i.e., bedridden illness, death in the family (most excuses enjoyed but not accepted), and

2. the student contacts the instructor on or before the day of the quiz/exam in question preceding class and is ready to take the quiz or exam on the day he or she returns to class, unless other arrangements have been completed.

ACADEMIC DISHONESTY

Academic dishonesty is a serious offense. It is punishable in this class by loss of points or failure. Students who look away from their exams/quizzes during testing may receive a zero on that evaluation. Similarly, students who have books or other assistive material or notations in view during testing will automatically receive, at a minimum, a zero on that evaluation.

OFFICE HOURS

My office hours will be: Monday/Tuesday/Thursday/Friday - 1:00-3:30 p.m.
Meetings are to be by appointment only.
(See me after class to arrange appointments if these times are not convenient.)

Office: B-224
Office Phone: 987-5036
Business Division Office: 987-5007
Home Phone: 1-722-2323

(Please do not call my home before 6:45 a.m. or after 10:30 p.m.)

A S S I G N M E N T S C H E D U L E

PRINCIPLES OF ECONOMICS 161
for the class of
Assistant Professor Charles A. Reichheld III

KEY: C = Chapter
T = Textbook - ECONOMIC TODAY - THE MACRO VIEW
ISM = Independent Study Module
AD = Article discussion (of articles brought to class by student)
SLG = Student Learning Guide to accompany Miller Economics Today

WEEK/DAY	ASSIGNMENT DUE DATE	ASSIGNMENT DUE ON DATE SHOWN	
WEEK 1			
Day 1	Wed, January 6	Topic:	INTRODUCTION TO PRINCIPLES OF ECONOMICS
		Required:	No assignment
		Activity:	TEUSE EXAM
Day 2	Thur, January 7	Topic:	MORE ABOUT THE COURSE
		Required:	Complete demographic survey. Familiarize yourself with all course materials.
		Activity:	Pretest Economic Concepts
WEEK 2			
Day 3	Mon, January 11	Topic:	WHAT ECONOMICS IS ALL ABOUT
		Required:	Read T:C2 pp 1-7 & 13-17
		Activity:	MATH ACHIEVEMENT TEST
Day 4	Tue, January 12	Topic:	GRAPHING AS APPLIED TO ECONOMICS
		Required:	Read T:C1 Appendix A
		Optional:	ISM 1 (0976) Graphing
Day 5	Wed, January 13	Topic:	THE PRODUCTION POSSIBILITIES MODEL
		Required:	Read T:C1 pp 8-12 & 17-19 ISM 2 (0977) Production Possibilities Complete Quiz at end of ISM 2 and turn in.
		Optional:	Read SLG:C1 pp 1-4 Complete problems TC1 p 22, #2 SLG:C1 pp 8-9 #1a, b, c & d.
Day 6	Thur, January 14	Topic:	MORE ABOUT TRADE-OFFS
		Required:	Read T: C18
		Activity:	Reading Comprehension Test ECON U.S.A. - Video 1
		Optional:	ISM 15 (0990) Economic Growth and Population

WEEK/DAY	ASSIGNMENT DUE DATE		ASSIGNMENT DUE ON DATE SHOWN
WEEK 3			
	Mon, January 18		MARTIN LUTHER KING HOLIDAY No class or assignment
Day 7	Tues, January 19	Topic: Required: Optional:	THE MARKET - DEMAND & SUPPLY Read T:C1 pp 33-47 SLG Read C2
Day 8	Wed, January 20	Topic: Required: Optional:	THE MARKET - EQUILIBRIUM Read T:C2 pp 48-56 ISM (0978) Supply & Demand
Day 9	Thur, January 21	Topic: Required: Activity:	CHANGES IN MARKET FORCES Do problems SLG pp 20-23, #1 (a,b,c & d) and pp 32-34 #1, 2 & 3 (a thru g) Student Handout Note: both will be collected Video on D & S
WEEK 4			
Day 10	Mon, January 25	Topic: Required: Optional:	THE PRICE SYSTEM - EFFICIENCY Read T:C3 Read SLG:C3 ISM 4 (0979) the Price System Complete Problems T:C3 p 80 #1,3,4 & 5
Day 11	Tues, January 26	Activity: Required:	Quiz--Covers chapters 1 & 2 No assignment
Day 12	Wed, January 27	Topic: Required: Optional: Activity:	CAPITALISM Read T:C4 Read SLG:C4 AD
Day 13	Thur, January 28	Topic: Required: Optional:	GOVERNMENT'S ROLE IN AN ECONOMY Read T:C5 Read SLG:C5

WEEK/DAY	ASSIGNMENT DUE DATE	ASSIGNMENT DUE ON DATE SHOWN	
WEEK 5			
Day 14 Mon, February 1		Topic:	GOVERNMENT SPENDING AND TAXATION
		Required:	Read T:C6
		Optional:	Read SLG:C6
		Activity:	AD
Day 15 Tue, February 2		Topic:	MORE ON TAXATION
		Required:	Read Handout on Tax Act ISM 5 (0980) Government Spending & Taxation
		Optional:	Complete Problems T:p 142 #1,2,3 & 4 SLG: pp 66-67 #1,2 & 3
Day 16 Wed, February 3		Topic:	CURRENT TAX POLICY No new assignment
		Activity:	Video-Discussion Review for Exam
Day 17 Thur, February 4		Activity:	EXAM (Chapters 1-6)
		Required:	No assignment
WEEK 6			
Day 18 Mon, February 8		Topic:	BUSINESS CYCLES
		Required:	Read T:C7 pp 144-148
		Optional:	ISM 6 (0981) Business Cycles
		Activity:	Return & review Exam results (hopefully)
Day 19 Tue, February 9		Topic:	Unemployment
		Required:	Read T:C7 pp 148-155
		Optional:	Read SLG:C7
		Activity:	Video
Day 20 Wed, February 10		Topic:	INFLATION
		Required:	Read T:C7 pp 155-169
		Activity:	AD
Day 21 Thur, February 11		Topic:	THE CIRCULAR FLOW
		Required:	Read T:C8 Complete T:C8 p 187, problems 1,2,3,4 & 5 to be turned in
		Optional:	Read SLG C8

WEEK/DAY	ASSIGNMENT DUE DATE	ASSIGNMENT DUE ON DATE SHOWN	
WEEK 7			
Day 22	Mon, February 15	Topic:	NATIONAL INCOME ACCOUNTING
		Required:	Read T:C9 pp 188-191 & 200-201
		Optional:	ISM 7 (0982) National Income Accounting
		Activity:	Video
Day 23	Tue, February 16	Topic:	CALCULATING GNP
		Required:	Read T:C9 pp 191-199 & 202-207
		Optional:	Read SLG:C9 Complete Problems SLG: p 102 #1 T:C9 p 207 #1,2 & 3
Day 24	Wed, February 17	Topic:	GNP & THE CIRCULAR FLOW
		Required:	Complete and turn in handout on National Income calculations
		Activity:	AD & Review
Day 25	Thur, February 18	Topic:	AGGREGATE DEMAND & SUPPLY
		Required:	No new assignment
		Activity:	Quiz (Chapters 7, 8 & 9)
WEEK 8			
Day 26	Mon, February 22	Topic:	AGGREGATE DEMAND
		Required:	Read T:C 10
		Optional:	Read SLG:C10 ISM 14 (0989) The Supply Side
		Activity:	Video
Day 27	Tue, February 23	Topic:	AGGREGATE DEMAND
		Required:	Read T: C11 ISM 8 (0983) Keynesian Model Complete problems T: C11, p 242 #1,2,3 & 4 and turn in
		Activity:	AD
Day 28	Wed, February 24	Topic:	INCOME AND EMPLOYMENT DETERMINATION
		Required:	Read T: C12 pp 244-251
		Optional:	Read SLG C12
Day 29	Thur, February 25	Topic:	THE MULTIPLIER
		Required:	Read T:C12 pp 251-260 ISM 9 (0984) Multiplier Principle
		Activity:	AD

WEEK/DAY	ASSIGNMENT DUE DATE		ASSIGNMENT DUE ON DATE SHOWN
WEEK 9			
Day 30	Mon, February 29	Topic:	PARADOX OF THRIFT AND OUTPUT GAPS
		Required:	Read T:C12 p 260-266 ISM 10 (0985) Inflationary & Deflationary Gaps
		Optional:	Complete problems T: p 267 #1,2,3,4 & 5 Read T: C12 Appendix B - The Accelerator Principle
Day 31	Tue, March 1	Topic:	THE PUBLIC SECTOR MOVES
		Required:	Read T:C13 pp 272-280
		Optional:	Read SLG C13
		Activity:	AD
Day 32	Wed, March 2	Topic:	FISCAL POLICY
		Required:	Read T:C13 pp 281-286
		Optional:	Complete Problems T:C13 pp 297 #1,2,3 & 4 and SLG - pp 153-3 #1,2 & 3
		Activity:	Video
Day 33	Thur, March 3	Topic:	AUTOMATIC STABILIZERS AND GOVERNMENT DEBT
		Required:	Read T:C13 pp 286-296
		Activity:	AD
WEEK 10			
Day 34	Mon, March 7	Activity:	Exam (C 7-13)
Day 35	Tue, March 8	Activity:	POSTTEST on Economic Concepts AD
Day 36	Wed, March 9	Topic:	MONEY
		Required:	Read T:C14 pp 300-309
		Optional:	Read SLG:C14
Day 37	Thur, March 10		FEDERAL RESERVE FIELD TRIP - No formal class
WEEK 11			
Day 38	Mon, March 14	Topic:	FUNCTIONS OF THE FEDERAL RESERVE BANK
		Required:	Read Text: C14 pp 309-316
		Activity:	Video
Day 39	Tue, March 15	Topic:	THE PROCESS OF MONEY CREATION
		Required:	Read T:C15
		Activity:	Video

WEEK/DAY	ASSIGNMENT DUE DATE	ASSIGNMENT DUE ON DATE SHOWN	
Day 40	Wed, March 16	Topic:	MORE ON MONEY CREATION
		Required:	ISM 11 (0986) Money Creation
		Optional:	Read SLG:C15 Do problems T:C15 p 333 #1,2 & 3 and SLG C15 pp 173-175 #1,2 & 3
		Activity:	AD
Day 41	Thur, March 17	Topic:	MONETARY THEORY AND POLICY
		Required:	Read T:C16
		Optional:	Read SLG C16 ISM 12 (0987) Keynesian Model
		Activity:	AD
WEEK 12			
Day 42	Mon, March 21	Topic:	MONETARY THEORY AND POLICY
		Required:	ISM 13 (0988) Comparison of Keynesian & Monetarist Models
		Activity:	Video
Day 43	Tue, March 22	Topic:	STAGFLATION, RATIONAL EXPECTATIONS AND GROWTH
		Required:	Read T:C17 pp 358-371
		Optional:	Read SLG:C17
Day 44	Wed, March 23		FINAL EXAM (C 1-18)

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